

3 1761 04412 6951


UNIV. OF
TORONTO
LIBRARY

INSCRIPTIONS AT OMAN

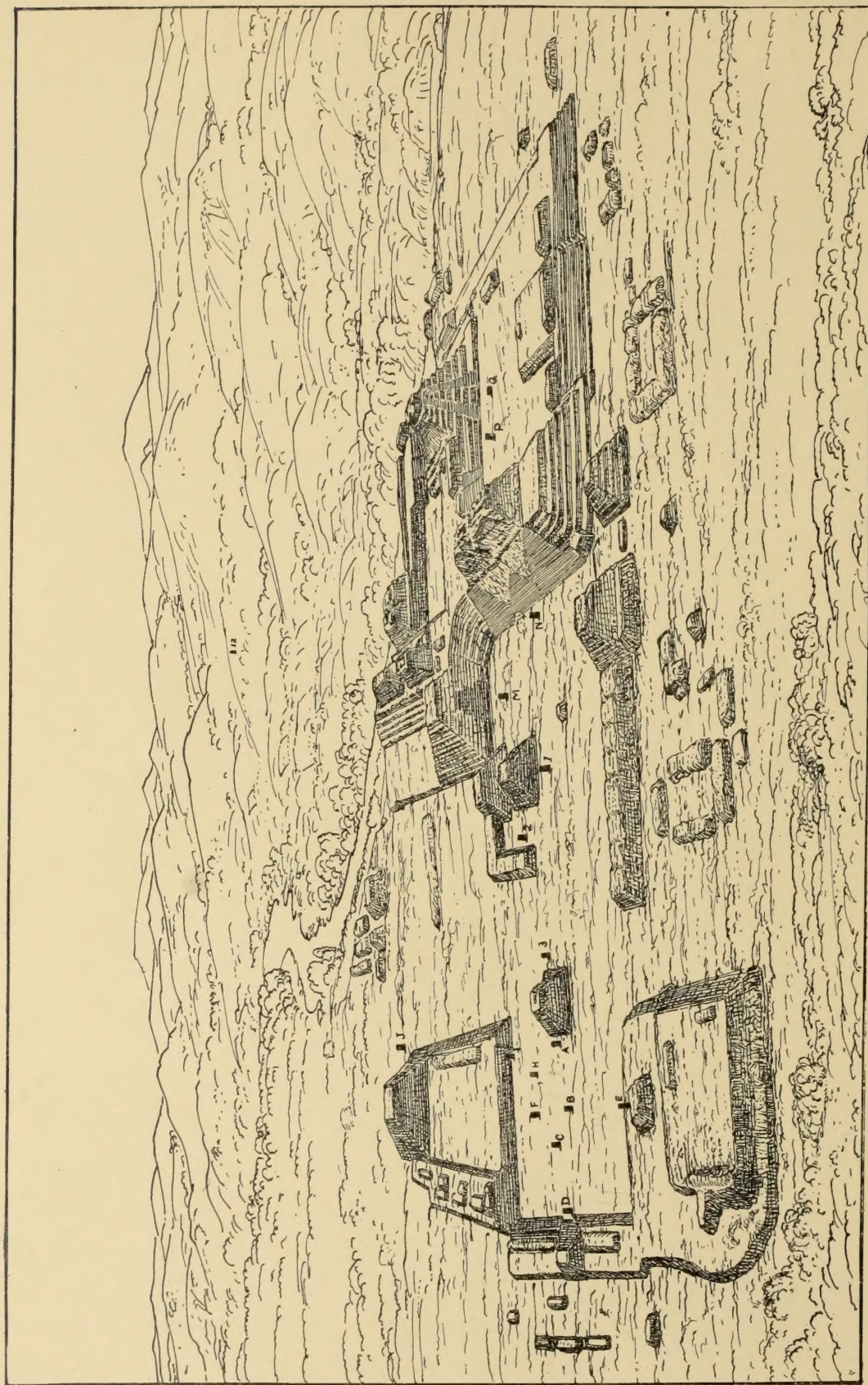
1979

I

THE
INSCRIPTIONS AT COPAN



Digitized by the Internet Archive
in 2013



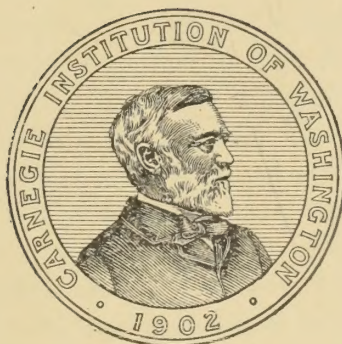
The Ruins of Copan, Honduras, looking east. After the drawing by W. H. Holmes,

THE INSCRIPTIONS AT COPAN

BY

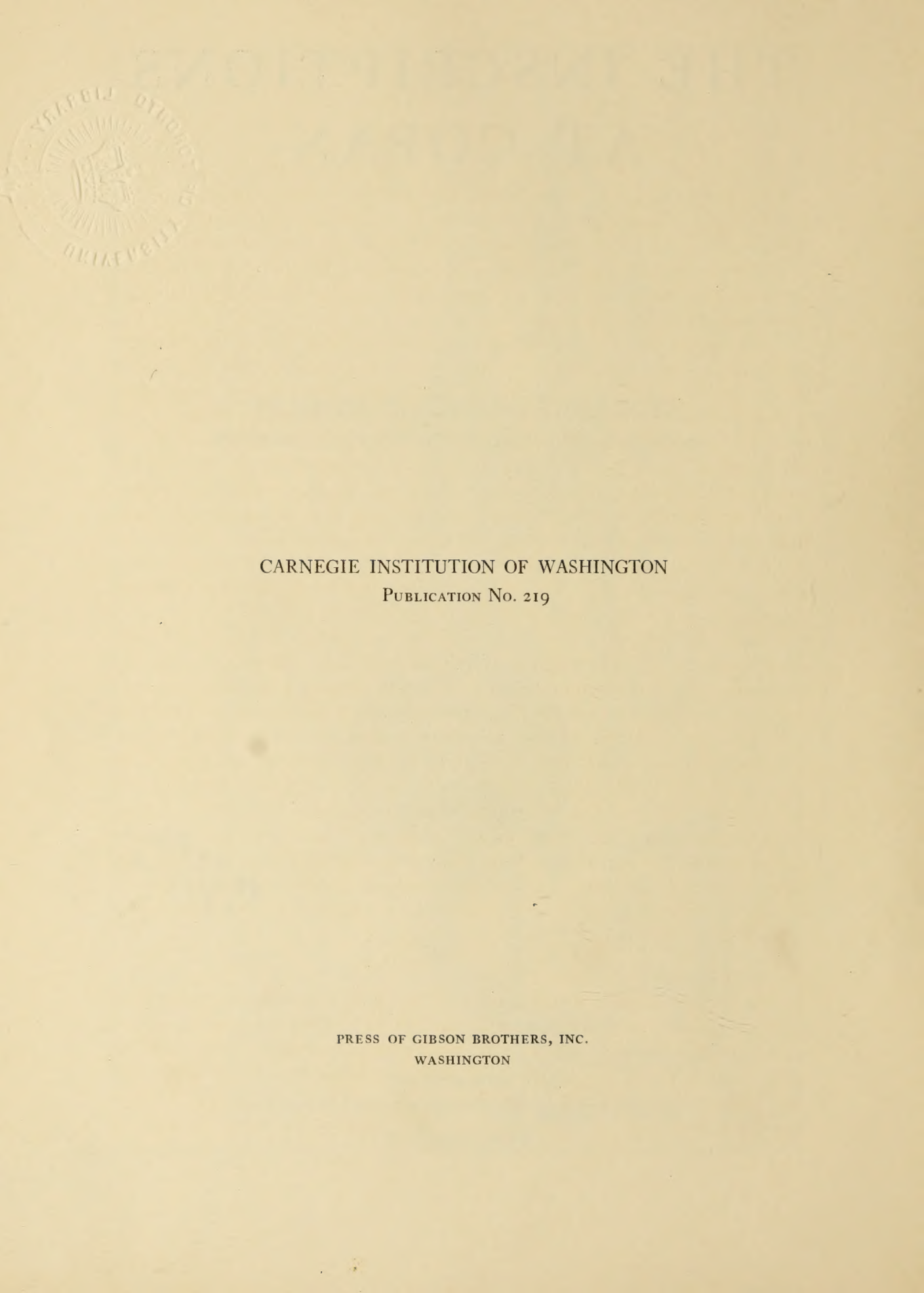
SYLVANUS GRISWOLD MORLEY

ASSOCIATE OF THE CARNEGIE INSTITUTION OF WASHINGTON



158293
5/1/21

PUBLISHED BY
THE CARNEGIE INSTITUTION OF WASHINGTON
WASHINGTON, 1920



CARNEGIE INSTITUTION OF WASHINGTON

PUBLICATION No. 219

PRESS OF GIBSON BROTHERS, INC.
WASHINGTON

PREFACE.

It is now just a decade since the writer first visited Copan and began collecting the data presented in this memoir, the hieroglyphic inscriptions at that site. As originally planned these were to have formed the first chapter of a work on the inscriptions of all the Maya cities, but shortly after his connection with the Carnegie Institution of Washington it became apparent that the inscriptions at Copan alone were sufficient in number to merit monographic treatment.

Meanwhile the scope of the investigation had been broadening in other directions. The decipherment of the unknown hieroglyphs had been going forward during this period, slowly it is true, but none the less surely, and it had become possible to include much new material in the projected memoir. For example, when the writer first visited Copan in 1910, he had not yet identified the hieroglyph for the hotun, and the importance of that 5-year period as determining the dates upon which the Maya erected their monuments was hardly more than suspected, whereas it is now known to have been one of the most fundamental and far-reaching expressions of the Maya civilization. Again in 1910, the meaning of the Supplementary Series was still unknown, while today its interpretation as a lunar calendar embodying certain eclipse data may be accepted without reservation.

Finally the fact that the Maya were the only people of the New World who developed a chronological system of sufficient accuracy to exactly measure really vast stretches of time, and who devised a graphic system of sufficient flexibility to record the same, has made advisable an extended consideration of Maya history as a whole, and the inclusion in the appendices of much more data than those presented by the inscriptions at Copan alone. While these inclusions have expanded this investigation far beyond the limits of the single chapter originally contemplated, they have at the same time made possible a more exhaustive treatment of the subject, and it is hoped that they will have materially increased the usefulness of this volume in providing a standard cross-section of ancient American chronology to which all cultures contiguous to the Maya may ultimately be referred.

In the preparation of this volume the writer has received much valuable assistance, and has everywhere encountered the fullest cooperation in the prosecution of his researches. He wishes to acknowledge especially his obligations to Dr. H. J. Spinden of the American Museum of Natural History, Mr. William Gates of Point Loma, California, and Dr. C. E. Guthe of Phillips Academy, Andover. To Dr. Spinden he is indebted for many suggestions

as to the art sequence at Copan, for a number of statements written expressly for insertion here, analyzing the stylistic features of different monuments, and more largely for his fundamental contributions to the whole field of Maya Art, which have so greatly stimulated research in the cognate branch of Maya chronology, by making possible the approximate dating of partially destroyed texts by means of the stylistic criteria present.

To Mr. William Gates thanks are due for the free use of his large collection of post-conquest Maya manuscripts and books, which in size as well as in importance has no equal; for permission to reproduce the full text of the original Galindo report on Copan, now published for the first time (Appendix XI); for several translations both from Spanish and Maya into English, notably Appendix V, and the important page 66 from the Chronicle of Oxkutzcab (Appendix II); and especially for his observations on the distribution of the Maya linguistic stock (Appendix XII) and for his preparation of the Index.

To Dr. Guthe appreciation should be expressed for his painstaking care in the verification of the many calculations and bibliographical references throughout this work, and for other assistance in its final stages.

To the officials of the Peabody Museum of Harvard University, Mr. C. C. Willoughby, Director, and Dr. A. M. Tozzer, Curator of Middle American Archæology and Ethnology, the writer finds himself greatly indebted for their generosity in placing at his disposition all the material in the Museum relating to Copan, and to Mr. S. J. Guernsey also of the Museum staff for his assistance in utilizing the same. Indeed no exhaustive study of the Copan inscriptions could have been completed without recourse to the rich collections in the Peabody Museum, not only of original sculptures and casts, but also of hundreds of early unpublished photographs, and the writer wishes to acknowledge the consideration which has made possible the inclusion here of this important new material.

Dr. Fred. E. Wright, of the Geophysical Laboratory of the Carnegie Institution of Washington, has kindly prepared a petrographic description of the material of the Copan monuments (Appendix I).

Dr. W. H. Holmes, Head Curator of Anthropology at the United States National Museum, has graciously contributed one of his well-known archæological panoramas, the drawing of Copan which forms the frontispiece of this volume; and Mr. John L. Ridgway, of the United States Geological Survey, has assisted greatly in preparing the illustrations for reproduction.

Dr. E. L. Hewett and the Managing Committee of the School of American Research have generously permitted the incorporation in this volume of the results of the writer's first two visits to Copan in 1910 and 1912, which were made under the auspices of that organization.

For assistance in special phases of this investigation thanks are due to Messrs. G. N. Collins, O. F. Cook, W. Popenoe, and Major E. A. Goldman of the United States Department of Agriculture, Dr. Ellsworth Huntington of

Yale University, Dr. R. K. Morley of Worcester Polytechnic Institute, Dr. Charles Peabody of Phillips Academy, Andover, Professor Marshall Saville of the Museum of the American Indian, and Dr. J. W. Fewkes of the Bureau of American Ethnology, Smithsonian Institution.

In addition to the foregoing, the writer finds himself indebted for much practical help in Central America, to various officials of the United Fruit Company, without which the difficulties of actual field-work, traveling-facilities, living-quarters, labor, etc. would have been enormously increased. He is under especial obligation in this respect to Mr. G. M. Shaw, manager of the Guatemala division of the United Fruit Company, to Mr. Alfred Clark, general manager of the Ferrocarriles Unidos de Centro America, to Dr. N. P. MacPhail in charge of the Quirigua Hospital and to Mr. M. D. Landry, superintendent of the Quirigua district.

To Mr. Rafael Levy of L. Leon Löwe and Co. of Zacapa, Guatemala, "the Gateway of Copan," thanks are also due for having, on numerous occasions, provided mule-trains for reaching Copan, no inconsiderable service in a land where all travel is by means of that faithful animal.

Finally to his many friends at the village of Copan, Don Juan Ramon Cuevas, Don Rafael, Don Porfirio, and Don José Villamil, Don Clementino López, Don Jacobo Madrid, Don Carlos Martínez and Doña Julia Zuniga whose kindly help and unfailing courtesy have greatly facilitated the writer's studies at the ruins, and particularly to Arnulfo Martínez, his youthful assistant at Copan, as well as to those many other small citizens of the village, whose nimble wits and sharp eyes have ferreted out hitherto unknown texts in various parts of the valley, his gratitude should also be expressed.

The pleasant associations thus formed with the villagers during the past decade received more formal expression during the writer's last visit to Copan in June 1919, when at the session of the cabildo for June 2 he was elected a citizen of the Municipality for which honor he is deeply appreciative.

This volume treats primarily of the hieroglyphic inscriptions at the ruins of Copan in western Honduras, the southern metropolis of the Old Maya Empire. To the general reader, interested principally in the larger aspects of this investigation, such as the background of the research and the conclusions reached, Chapters I and V are especially commended. Chapters II, III, and IV deal with the detailed examination of the different monuments and are more technical in nature.

Special phases of the subject will be found in the appendices. In IV, V, and XI are early descriptions of Copan (1576, 1689, and 1834 respectively). In I, III, IX, and X, are tabular and other data relating to the Copan inscriptions and monuments; VI and VII contain descriptions of the Supplementary Series and the hotun respectively, subjects extensively treated in almost all of the Old Empire texts.

Particular attention is directed to Appendices II and VIII. The former deals with the correlation of Maya and Christian chronology and attempts to answer the oft-repeated query as to the actual age of the Maya civilization, and the latter is a concordance of all known monuments which mark the ends of successive 5-year periods in the Maya chronological epoch, in effect a table of the relative ages of the several cities and their monumental remains.

SYLVANUS GRISWOLD MORLEY.

CARNEGIE INSTITUTION OF WASHINGTON,

April 6, 1920.

CONTENTS.

	PAGE.
CHAPTER I. Introduction.....	I
Location and environment.....	I
Description of the site.....	6
History of the site.....	14
History of the decipherment of the Maya hieroglyphic writing....	28
Scope of the present investigation.....	33
Method of treatment.....	46
CHAPTER II. The inscriptions of the Early Period.....	53
CHAPTER III. The inscriptions of the Middle Period.....	129
CHAPTER IV. The inscriptions of the Great Period.....	219
CHAPTER V. Conclusions.....	391
General comparisons.....	391
Probable function of the Maya monuments.....	396
The origin of the Maya civilization.....	402
History of Copan during the Old Empire.....	415
Other cities of the Old Empire.....	435
The fall of the Old Empire.....	442
APPENDIX I. A petrographic description of the material of the Copan monuments, by Fred. E. Wright.....	463
APPENDIX II. The correlation of Maya and Christian chronology.....	465
APPENDIX III. The nomenclature of the Copan monuments.....	537
APPENDIX IV. A description of the ruins of Copan, by Diego García de Palacio, in 1576.....	541
APPENDIX V. A description of the ruins of Copan, by Francisco Antonio Fuentes y Guzmán, in 1689.....	543
APPENDIX VI. The Supplementary Series.....	551
APPENDIX VII. The hotun.....	565
APPENDIX VIII. List of monuments marking the hotun-endings during the Old Empire.....	581
APPENDIX IX. The provenance and dates of the Copan monuments.....	587
APPENDIX X. List of day-signs and month-signs found in the Copan inscriptions..	589
APPENDIX XI. A description of the ruins of Copan, by Juan Galindo, in 1834....	593
APPENDIX XII. The distribution of the several branches of the Mayance linguistic stock, by William Gates.....	605
BIBLIOGRAPHY.....	617
INDEX.....	629

The engraving facing page 1 of this volume was redrawn from plate 8 of the section on Archæology of the *Biología-Centrali Americana* by A. P. Maudslay. It represents the date 6 Caban 10 Mol, the most important in the history of Copan, as recorded upon the step leading to the sanctuary of Temple 11.

The engraving following the index is from the same publication (plate 94) and represents the death's head on the front of Altar R.

LIST OF ILLUSTRATIONS.

PLATES.

	FACING PAGE.
Frontispiece. Ruins of Copan looking east, after the drawing by W. H. Holmes.	
1. Map of region occupied by the Maya civilization	2
2. <i>a</i> , Copan Valley looking west from Main Structure; <i>b</i> , modern village of Copan looking west.	14
3. Map of Copan Valley showing location of Main Structure and outlying groups. .	20
4. <i>a</i> , Main Structure looking east; <i>b</i> , Main Structure looking south.	28
5. <i>a</i> , Main Structure looking southwest; <i>b</i> , Main Structure looking northwest.	34
6. Plan of Main Structure, showing location of associated monuments.	46
7. <i>a</i> , Great Plaza, looking east; <i>b</i> , Great Plaza looking northwest.	48
8. Inscriptions on Altars A', Y, X, J', K', L', and M'.	64
9. Inscriptions on Stelæ 18, 20, and 21, and Altar O'.	80
10. Inscription on Stela 16.	96
11. Inscription on Stela 17.	100
12. Inscription on Stela 15.	108
13. Inscription on Stela 7.	114
14. Inscription on Stela E and associated altar.	126
15. Inscriptions on Stelæ 10 and 13.	130
16. Inscription on Stela 19.	142
17. Inscription on Stela 12.	150
18. Inscription on Stela 2.	154
19. Inscriptions on Stelæ 3 and 5.	166
20. Inscriptions on West and East Altars of Stela 5.	170
21. Inscription on Altar of Stela 1.	176
22. Inscriptions on Altars B' and C' and the Altars of Stelæ I and 13.	192
23. Inscriptions on Altars H' and I'.	210
24. Inscriptions in north gallery of Temple 18 and on Altars S, W, G', F', and Q'.	222
25. Hieroglyphic Stairway before and after excavation.	240
26. Dates, 10, 1, 15, 25, 26, and 27 from Hieroglyphic Stairway; and inscriptions on Hieroglyphic steps of Mound 2 and on Altar N'.	256
27. Date 24 from Hieroglyphic Stairway.	272
28. Inscriptions on Stelæ M and 22, and on east jamb of north doorway of Temple 11; and the toad from the Shrine of the Toad.	288
29. Inscriptions on jambs of north and south doorways of Temple 11.	304
30. Inscription on Reviewing-stand in Western Court.	320
31. Inscription on step of doorway leading into sanctuary of Temple 21 <i>a</i>	336
32. Inscription on Stela 8.	352
33. Ruins of Copan looking east, after the painting by Carlos Vierra.	416

TEXT-FIGURES.

	PAGE.
1. Death of the <i>tlahouani</i> (ruler) Ahuizotl and succession of Moctezuma II in the year 10 Tochtli (1502 A. D.) as represented in the Aztec hieroglyphic manuscripts	37
2. Dedication of the great <i>teocalli</i> (temple) of Huitzilipochtli, the Aztec God of War at Tenochtitlan (Mexico City) in the year 5 Tecpatl (1484 A. D.)	39
3. Glyphs for natural phenomena (earthquakes, eclipses, comets, volcanic eruptions, and snow-storms) in the Codex Telleriano-Remensis	40
4. Glyphs for the <i>xihuitlmolpia</i> or completion of the 52-year cycle in the Aztec hieroglyphic manuscripts	41
5. Diagram showing method of designating individual glyph-blocks	50
6. Inscription on top of Altar Q'	61
7. Inscription on front of Stela 22	70
8. Inscription on front (or back) of Stela 25	70
9. Inscription on front and right side of Stela 20 (Fragment 1)	72
10. Inscription on back and sides of Stela 20 (Fragments 2 and 3)	72
11. Diagram showing best assemblage of Fragments 1, 2, and 3 of Stela 20	74
12. Sketch showing position of fragment of Stela 24 in the foundations of Stela 7	79
13. Inscription on front and back of Stela 24	80
14. Inscription on front, back, and one side of Stela 21	95
15. Inscription on back of Stela 18	98
16. Parts of inscription on left slab of tablet in Temple of the Cross at Palenque	99
17. Inscriptions showing use of normal-form of tun-sign for zero	100
18. Plan of the mound of Stela 7	103
19. North and south cross-section through Stela 7 and its foundations	104
20. Inscription on Fragments V' from Group 9	118
21. Inscription on Fragment S'	121
22. Sketch-map of Group 9 showing location of the monuments at Copan Village	124
23. Glyphs used in place of month-signs in Initial Series terminal dates	138
24. Map of the principal mound of Group 13 (Hacienda Grande)	144
25. Parts of inscription on Stela 19 and the associated altar	145
26. Inscription on back and sides of Stela 23	148
27. Inscription on collar of Stela 3	155
28. Top of East Altar of Stela 5 showing fragments into which it is broken	164
29. Inscription on Fragment W of East Altar of Stela 5	164
30. Supplementary Series from Temples of Cross and Foliated Cross at Palenque	167
31. Composite numerals made up of head-variant and bar-and-dot elements	168
32. Top of West Altar of Stela 5, showing fragments into which it is broken	171
33. Inscription on side of Altar Y' of Stela 6	184
34. Two upper glyph-blocks of inscription on north side of Stela J	197
35. Inscription on Fragment Y'	210
36. Seated human figure on back of Stela B	225
37. East and west cross-section through center of Hieroglyphic Stairway of Mound 26	240
38. Dates 2, 3, 7, 8, 11, 12, 13, 14 and 21 from the Hieroglyphic Stairway	243
39. Venus variants of the day-sign Lamat	244
40. Dates 22 and 23 from the Hieroglyphic Stairway	257
41. Part of Date 26 (?) from the Hieroglyphic Stairway	263
42. Part of inscription on pedestal of Stela N	285
43. Inscription on front of Altar L	290
44. Drawing showing assemblage of the several sections of Altar B'	292
45. Calendar Round date on back of Altar D'	294
46. Design and inscription on front, back and sides of Altar W'	331
47. Design and inscription on back of Altar T	335
48. Inscription on Fragment E'	339
49. Occurrences of the date 6 Caban 10 Mol at Copan	345

	PAGE.
50. Occurrences of the great-great-cycle glyph.....	347
51. Inscriptions on : <i>a</i> , Fragment X'; <i>b</i> , Fragment Z'.....	368
52. Drawing of Altar O' showing broken edges at top and bottom.....	371
53. Plan of front gallery of Temple 18.....	371
54. Part of inscription on Altar G'.....	374
55. Part of inscription on Altar T'.....	376
56. <i>a</i> , Part of inscription on peccary skull from Tomb 1; <i>b-e</i> , early forms of the day-sign Ahau.....	379
57. Map showing location of Copan and the principal cities of the southeastern Maya frontier.....	381
58. Plan of the ruins of Rio Amarillo.....	382
59. Inscription on four sides of Altar 1 at Rio Amarillo.....	383
60. Part of inscription on Altar 2 at Rio Amarillo.....	384
61. Plan of the ruins of Los Higos.....	384
62. Inscription on back and sides of Stela 1 at Los Higos.....	385
63. Inscription on front of Tuxtla Statuette.....	403
64. Map showing probable line of migration of the Maya into their historical habitat..	404
65. Inscription on the Leyden Plate.....	411
66. Inscription on Stela 9 at Uaxactun.....	412
67. Anthropomorphic figures of Archaic type: <i>a</i> , <i>b</i> , Copan; <i>c</i> , near Guatemala City.....	422
68. Diagram showing chronologic distribution and frequency of the dated monuments at Copan.....	432
69. Diagram showing periods of occupation of the principal Old Empire cities.....	433
70. Diagram showing chronologic distribution and frequency of all dated monuments in the Old Empire.....	440
71. Diagram showing supposed variation in rainfall in the Maya area from 500 B. C. to 1000 A. D., after Huntington.....	450
72. Page 66 from the Chronicle of Oxkutzcab.....	471
73. Indian painting, probably showing a katun-wheel, figured by Bishop Cogolludo in his <i>Historia de Yucathan</i> (p. 133).....	472
74. Inscription on capstone in outer chamber at north end of East Range of Monjas Quadrangle at Uxmal.....	511
75. Inscriptions on north sides of rings of Ball Court at Uxmal.....	514
76. Inscription on front of column in High Priest's Grave at Chichen Itza.....	518
77. Part of inscription on capstone in small house near <i>casa principal</i> at Chichen Itza.....	520
78. Glyphs G, F and B of the Supplementary Series.....	552
79. Glyphs A, C, D, E and X of the Supplementary Series.....	553
80. The head elements in Glyph C of the Supplementary Series.....	560
81. The hotun glyph.....	565
82. The lahuntun glyph.....	566
83. Map of the ruins of Piedras Negras.....	569
84. Map of the ruins of Quirigua.....	570
85. Design and part of inscription on front of Stela 1 at Tulum.....	572
86. Design and inscription on cliff at the Hunacab mouth of the Cave of Loltun....	572
87. Inscription on front of lintel in Temple of the Initial Series at Chichen Itza.....	572
88. Parts of inscription on back of Stela 1 at Tulum.....	574
89. Design and part of inscription on front of Stela 1 at Ichmul.....	574
90. <i>a</i> , Design and part of inscription on front of Stela 9 at Mayapan; <i>b</i> , middle section of page 11 of the Codex Peresianus.....	575
91. Map showing distribution of the several branches of the Mayance linguistic stock.....	606



CHAPTER I.

INTRODUCTION.

LOCATION AND ENVIRONMENT.

The ruins of Copan are situated in the valley of the Copan River, in the extreme western part of the Republic of Honduras, lat. $14^{\circ} 51' 30''$ N., long. $89^{\circ} 9' W.$,¹ at an elevation of about 2,000 feet (600 meters) above the sea-level.² (See plate 1.) At this point the river emerges from a narrow cañon and flows in a general westerly direction through an open valley, which is about 2.5 kilometers wide at the widest point and 13 kilometers long. The sides are formed by sharply rising hills, the higher ridges of which reach an altitude of 3,000 feet (900 meters). The bases of these are thickly overgrown with underbrush and low deciduous trees, which give way to a sparse growth of pine toward the summits. At the western end of the valley the hills close in again; the river enters another narrow cañon, and, after some 100 kilometers of wandering in a general westerly direction, turns north and empties into the Motagua River at Zacapa. There are many rapids throughout its course and it is unnavigable. The beautiful little valley thus formed is completely inclosed by steep ranges of mountains and may be approached only by rough and precipitous trails, which have effectually discouraged general travel in this direction.

The region has been the scene of intense volcanic activity. There are several volcanic peaks or domes in the immediate vicinity of Copan, and every cut in the road to Zacapa discloses vast underlying deposits of volcanic origin, chiefly ash. Maudslay describes the native rock as a decomposed trachyte.³ It is, in fact, an andesitic tuff, with occasional small, broken quartz crystals and more rarely roughly spherical inclusions of a denser, harder rock, sometimes as large as a foot in diameter, which differ from the host only in being more indurated and containing more quartz. In some cases the latter have successfully defied all efforts of the ancient artisans to remove them, and they have been left embedded in the finished sculptures.⁴

¹Gordon, 1896, p. 1. Maudslay gives the latitude as N. $14^{\circ} 50' 30''$ (1889-1902, vol. I of text, p. 14). Galindo in two places gives the latitude as N. $14^{\circ} 45'$ and the longitude as W. $90^{\circ} 52'$ (1834; see Appendix XI, p. 595, and 1835a, pp. 549, 550) and as $14^{\circ} 39'$ and $91^{\circ} 13'$ in a third place (1836a, p. 76). Neither Gordon nor Maudslay gives the longitude. The longitude $89^{\circ} 9' W.$ is taken from the Hedges map of Guatemala published by the Pan American Union, and is only approximately correct. It is, however, far more accurate than either of Galindo's readings, which would locate Copan more than 100 miles farther west, in Guatemala.

²Gordon, 1896, p. 1. Popenoe (1919a, p. 126) gives the elevation as 1,900 feet (570 meters). Maudslay (1889-1902, vol. I of text, p. 11) gives 1,700 feet (518 meters). Meye (Schmidt, 1883) gives 550 meters, and Galindo (1836a, p. 76), 640 meters. Of these several readings, that of Popenoe is probably the most accurate, having been checked with the railroad elevation at Zacapa.

³Maudslay, 1889-1902, vol. I of text, p. 33. See also Gordon, 1896, p. 29.

⁴Stelæ D, 2, and 3, and Altars G₁ and U are cases in point. In the case of Stela D there were originally two such inclusions, one of which was removed. The other, however, was left in the finished monument, the artisans contenting themselves with breaking it off flush with the face of the stela. In the case of Stela 3 the inclusion was left untouched and the design crowded into the space around it. In Stela 2 the half of the inclusion left in the monument has been neatly turned to account in the design. (See pp. 140, 141.) In Altars G₁ and U the inclusions protrude several inches.

The material is not a lava flow or intrusion, but rather a volcanic mud composed of ash laid down in water, a true tuff. A petrographic description, not only of the inclusions in Stelæ 3 and D and Altar U, but also of the material of the bodies of these monuments as well, by Dr. F. E. Wright, of the Geophysical Laboratory (Carnegie Institution) will be found in Appendix I.

When Stephens, the American traveler and explorer, first visited Copan in 1839 the valley was buried in a dense tropical forest, the haunt of the monkey and jaguar.¹ According to information gathered by Gordon from the oldest inhabitants of the small modern village of Copan, this forest was cut down some time during the sixties of the last century by colonists from Guatemala, who were attracted thither by the fertility of the region.² These colonists and their successors completely cleared the valley, leaving only a small grove standing on the Acropolis at the Main Structure; and to-day all that remains of this once magnificent jungle are a few giant ceiba and cedar trees, whose lofty foliage spreads a grateful shade over the general desolation.

The region was peculiarly adapted to intensive aboriginal occupation. The climate is salubrious for the tropics, the elevation being such as largely to eliminate the excessive humidity of the coast plain. Toward the end of the dry season, particularly in April and May, the heat is intense in the middle of the day, but the mornings and evenings are always cool and refreshing, and indeed the climate is more healthful than that of almost any other Maya site. The water-supply is abundant, and the water itself is potable. The rainy season begins about the middle of May and lasts until the end of December, reaching its height in July.³ The river is subject to annual freshets, when it overflows its banks and inundates the low bottom lands, making the soil exceedingly fertile.

The region enjoys a rich and varied tropical flora. There are many useful indigenous species, both cultivated and wild, only a few of the more important of which can be enumerated here.

The two great food staples of Middle America in ancient times, as well as to-day, were maize (*Zea mays* Linnæus) and beans (*Phaseolus vulgaris* Linnæus), both of which are represented by numerous varieties at Copan and are cultivated for specialized purposes, such as rapidity of maturation, size of crop, etc. As many as four crops a year may be raised in some

¹Stephens (1841, vol. I, pp. 90-160) repeatedly mentions the dense vegetation with which the city was enveloped in his time.

²Gordon, 1896, pp. 1, 2, and 1899, p. 42.

³Popenoe (1919a, p. 127) gives the annual rainfall at Copan as between 50 and 70 inches (1.27 to 1.78 meters). This estimate is based upon an average annual rainfall of 48.76 inches (1.24 meters) at Guatemala City covering the years 1894 to 1902, inclusive (1919, p. 28).

1894.....41.13 inches (1.04 meters).

1895.....38.07 inches (.97 meter).

1896.....45.64 inches (1.16 meters).

1897.....51.36 inches (1.30 meters).

1898.....56.07 inches (1.42 meters).

1899.....41.57 inches (1.05 meters).

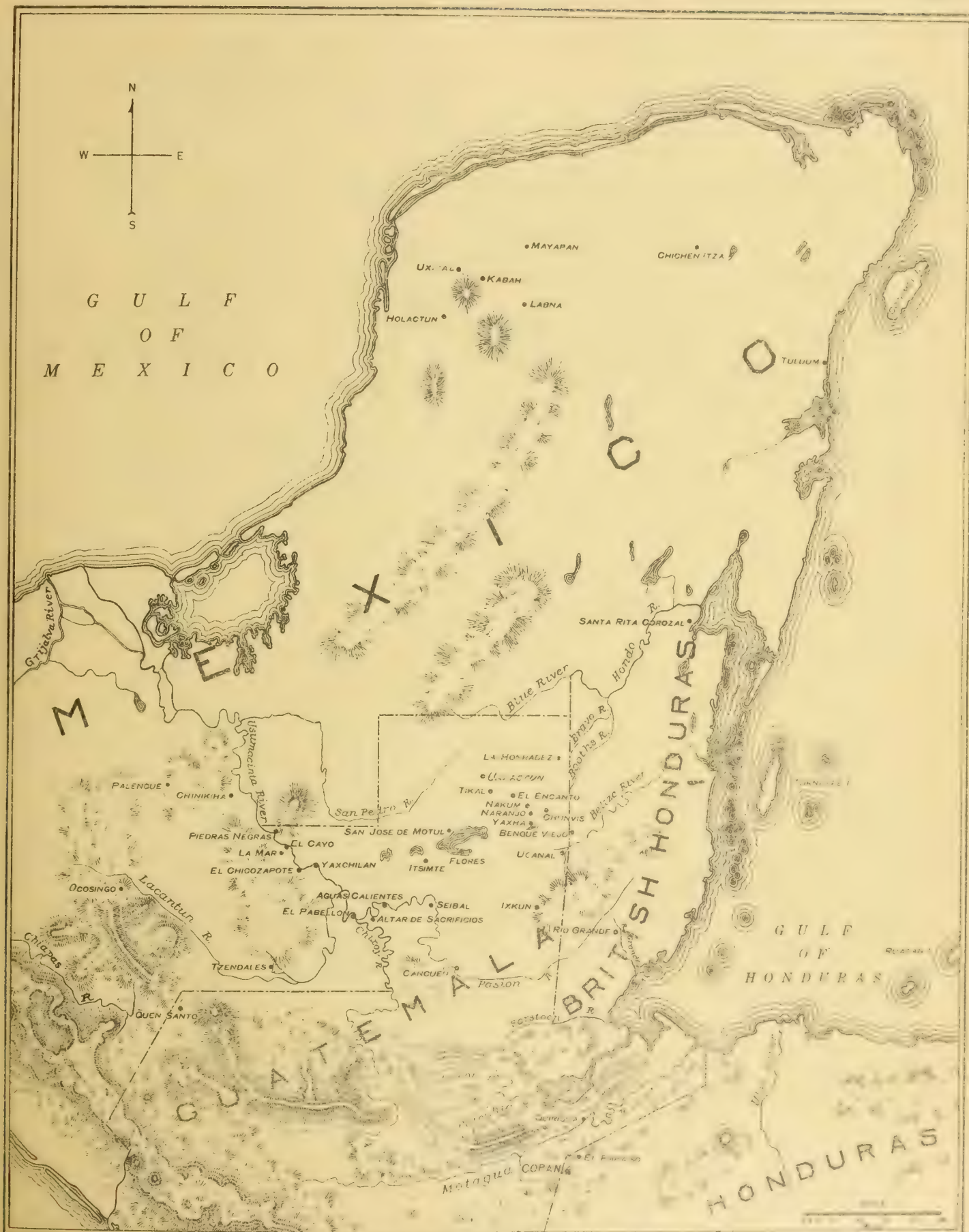
1900.....60.59 inches (1.54 meters).

1901.....52.06 inches (1.32 meters).

1902.....52.32 inches (1.33 meters).

Average for 9 years, 48.76 inches (1.24 meters).

As the precipitation on the Atlantic side of the Continental Divide in Central America is higher than on the Pacific side, it is probable that the annual rainfall at Copan averages at least 15 inches (38 cm.) higher than at Guatemala City, and that it is around 65 inches (1.65 meters).



ECKERT LITHO. CO. WASH. D.C.

Map of the region occupied by the Maya civilization showing location of the principal cities having inscriptions

localities; and there is one variety, with small slender ears less than 15 cm. long, which is said to ripen in 60 days.

The squash was probably next in importance as an article of diet. At least two species are known (*Pepo maximus* Linnæus and *Pepo vulgaris* Moench).

The sweet potato (*Ipomœa batatas* Poiret), the aguacate (*Persea americana* Miller), and the chile were also favorite articles of diet. There are two species of the last, the large chile (*Capsicum baccatum* Linnæus) and the small chile (*Capsicum frutescens* Linnæus).

The region abounds in edible fruits, which must have formed an important part of the food-supply in ancient times. There are at least two species of the zapote: the tul tree or common zapote (*Achradelpha mammosa* Cook) and the chico zapote (*Achras zapota* Linnæus). The wood of the latter was also used by the Maya for door lintels in the temples; and when these have not been subjected to dampness they remain sound and durable even after the lapse of 1,500 years. The latex of this same tree produces the chicle of commerce, or chewing-gum, but this does not appear to have been used among the Maya as in the chewing-gum of to-day.

Other fruits are several species of the anona (*Annona diversifolia* Safford, *Annona reticulata* Linnæus), the jocote (*Spondias purpurea* Linnæus), the pineapple (*Ananas sativus* Schultes), the guava (*Psidium guajava* Linnæus and *P. molle* Bertoloni), the papaya (*Carica papaya* Linnæus), and the nanche (*Byrsonima crassifolia* Humboldt, Bonpland and Kunth).

Delicious beverages were made from the cacao tree (*Theobroma cacao* Linnæus), and the closely related pataxte tree (*Theobroma bicolor* Humboldt and Bonpland). Vanilla (*Vanilla planifolia* Andrews), a climbing orchid, is also found in the forests.

Tobacco (*Nicotiana tabacum* Linnæus) was, and still is, cultivated, the Copan leaf being regarded as the finest in Central America. The greater part of the tobacco used throughout Guatemala comes from this district; indeed, this crop is now the only export of the region, being the chief source of support for the present inhabitants of the Copan Valley.

Among the non-edible species, cotton (*Gossypium hirsutum* Linnæus) was doubtless the most important, practically all of the clothing in ancient times being made from it. The calabash tree (*Crescentia cujete* Linnæus) probably ranked next, the fruit being used in making the smaller cooking utensils, such as ladles, bowls, and cups.

The several species of palm played an important part in the life of the people. The leaves of the corozo palm (*Attalea cohune* Martius) were used for thatching the huts of the lower classes. The nuts of this palm and the coyol palm (*Acrocomia vinifera* Oersted) were also eaten. A fan palm (*Sabal* sp.) was probably used by the ancient inhabitants in making their baskets and matting.

Among other non-edible species used by the Maya were the bottle gourd (*Cucurbita lagenaria* Linnæus), from which the water-carriers or bottles

were made; rubber (*Castilla* sp.); copal (*Elaphrium gracile* Engler), the gum of which was used as incense in the religious rites and ceremonies; several fibers, as the *Carludovica* plant, from which baskets, bags, and carriers were made, and the wood of the pine (*Pinus tenuifolia* Benthham), which was used for torches.

As noted above, the flora is exceedingly rich and varied, particularly in species useful to man. Maize, beans, and cotton, however, were the staple crops, and such is the extent and fertility of the land available for cultivation in the valley that it could easily have supported the large population which formerly occupied this region.¹

The fauna, also, doubtless contributed an important part of the food-supply in ancient times.² Of the larger Mammalia hunted for their flesh, the deer was probably the most important. Landa states that communal deer hunts were held in Yucatan,³ and a considerable section of the Codex Tro-Cortesianus is devoted to representations of the snaring of that animal.⁴ At least two species occur: the white-tailed deer, similar to the Virginia deer (*Odocoileus truei* Merriam), and the brocket or forest deer (*Mazama sartorii* Saussure).

There are two species of the peccary, the collared peccary (*Pecari angulatus* Cope) and the white-lipped peccary (*Tayassu pecari* Fischer); one species of the tapir, Baird's tapir (*Tapirella bairdii* Gill); three species of the ant-eater, the great ant-eater (*Myrmecophaga tridactyla centralis* Lyon), the tamandua ant-eater (*Tamanduas tetradactyla* Linnæus), and the two-toed ant-eater (*Cyclopes didactylus dorsalis* Gray). The flesh of all of these animals is still eaten.

Of the smaller Mammalia, the members of the agouti family (*Dasyproctidæ*) were probably the most highly prized as articles of diet in ancient times, as they are to-day; two species are found in the vicinity of Copan, the punctated agouti (*Dasyprocta punctata* Gray), and the tepescuintle (*Cuniculus paca nelsoni* Goldman). Their flesh is considered the most savory of all the bush meats.

Two species of monkeys occur, the Guatemalan howling monkey (*Alouatta villosa* Gray) and the Mexican spider monkey (*Ateles neglectus* Reinhardt).

¹For a more detailed account of the flora of the Copan region, see Popenoe's "The Useful Plants of Copan" (1919a), from which the foregoing data have been taken.

²The fauna and flora of Central America are elaborately described in the several sections of the *Biologia Centrali-Americana*, F. Ducane Godman and Osbert Salvin, editors. This publication of many volumes, and covering almost every branch of its chosen field, is little short of an encyclopædia of the Natural History of Central America. The above summary of the principal species hunted by the ancient Maya is based upon the sections on Mammalia (Alston, 1870-1882) and Aves (Salvin and Godman, 1897-1904) of this work. The earlier nomenclature, much of which has since become obsolete, has been revised by Major E. A. Goldman, of the Biological Survey, Department of Agriculture, whose long familiarity with the fauna of Central America and Mexico qualifies him to speak authoritatively on this subject. Maudslay's epoch-making contribution to the archæology of the region is also a section of this work.

³"They also join together for hunting in companies of fifty, more or less, and they roast the flesh of the deer on gridirons so that it shall not spoil, and when they reach the town, they make presents to their Lord, and distribute the rest among themselves as among friends." (Landa, 1881, p. 81.)

⁴Brasseur de Bourbourg, 1869-1870, plates 8-19.

Seven species of the cat family are present. Of these, the jaguar (*Felis onca goldmani* Mearns), the ocelot (*Felis pardalis* Linnæus), and others were hunted by the ancient Maya for their skins, which were worn by the rulers and principal nobles as cloaks.¹

Other smaller mammals occur in the region, as well as a large number of birds, many of which formed part of the food-supply in ancient times, but the clearing of the forest and the cultivation of the valley have now driven the game deeper into the mountains.

The ornithology of the region is particularly varied; of the birds hunted and trapped for food, the following were the most important: The chachalaca (*Ortalis vetula* Wagler), the curassow (*Crax globicera* Linnæus), the cojolito (*Penelope purpurascens* Wagler), doves (*Claravis pretiosa* Ferrari-Perez and *Chæmepelia passerina neglecta* Carriker), and pigeons (*Chlorænas flavirostris* Wagler).

Feathers formed an essential part of ancient Maya costume as depicted on the monuments, being especially used in the head-dresses and cloaks of the rulers, priests, and nobles. Many species have gorgeous plumage, the following, however, being the most beautiful: the Yucatan turkey (*Agriocharis ocellata* Chapman), also highly prized as an article of diet, the macaw (*Ara macao* Linnæus), the quetzal (*Pharomachrus mocinno* De la Llave), toucans (*Ramphastos piscivorus* Linnæus and *Pteroglossus torquatus* Gmelin), and parrots (*Amazona oratrix* Ridgeway).

In closing this brief description of the environment, one other important feature should be noted, namely, the occurrence of unlimited quantities of excellent building material in the immediate vicinity of the ruins. The native rock, outcroppings of which are found throughout the valley, was peculiarly adapted for use by primitive artisans, especially those having no metal tools.² It was easily quarried, easily transported, easily dressed, and easily sculptured.

¹On the monuments human figures are sometimes represented with such jaguar-skin cloaks. On the outer wall of the sanctuary of the Temple of the Cross at Palenque, for example, a human figure blowing through a pipe is shown with a jaguar skin thrown over his shoulders (Maudslay, 1889-1902, vol. iv, plate 72). The principal figure on the justly famous vase of Chama, a priest or ruler painted black, also has a jaguar-skin cloak (Dieseldorff, 1904, plate 48). The head of a jaguar appears as the head-dress of the figure on Stela 20 at Yaxchilan (Maler, 1903, plate 78). The beauty of the skin, and possibly veneration of the animal itself, doubtless made its pelt highly prized as an article of clothing.

Landa also mentions the custom: "Some of them, nobles such as the lords and captains, had helmets of wood, but these were very few in number, and with these arms they went to war clothed with feathers and the skins of tigers (i. e., jaguars) and lions." (Landa, 1881, p. 85.)

²It is generally held that the Maya of the Old Empire (the builders of Copan, Quirigua, Tikal, Naranjo, Seibal, Yaxchilan, Piedras Negras, Palenque, and other of the southern cities) did not know the use of metal, or at least of metal tools, and that all the intricate carvings of this region were done with tools of stone, such as basalt, diorite, or flint, which are harder than the materials sculptured, limestone, sandstone, and andesite. At Copan a number of small stone chisels or ax-heads made from these harder materials have been found. These are of different lengths, 5 to 15 cm., but of the same general form: slightly wedge-shaped, flattened, with a cutting edge at one end and a blunt nose at the other. Judging from the hardness of the materials from which they are made, and from their size and shape as well, they would appear to have been adequate for this purpose. Holmes, who made a special study of this point while at Copan in 1916, believes the finer work, the finish, was done by abrading tools, possibly such as these. He also found a number of rudely chipped implements, which would have served in the preliminary dressing of the stone scattered over the site, but he believes their number to be entirely inadequate to the performance of the vast work accomplished, especially the quarrying.

The quarries were located in the ridge of hills about a kilometer to the northwest of the Main Structure. Deep excavations may still be seen here; and chips, flakes, and even quarried blocks strew the ground.¹ From the quarries to the city is all down-grade; the stone itself is comparatively light in weight, and its transportation anywhere in the valley could hardly have offered any real difficulties to a people as resourceful as the builders of Copan.

The stone is close-grained for the most part, though free masses of harder materials occur here and there. Though brittle, it is fairly coherent, and capable of extraordinarily delicate treatment, even with chisels of stone, the only tools at the builders' disposal; indeed, its excellent qualities are in no small part responsible for the remarkable plastic art which developed here.

All factors for the development of an intensive culture were at hand: healthful climatic conditions; a fertile soil, insuring an adequate return of food and raiment when properly developed; a varied and useful fauna; an abundance of potable water; and a convenient and inexhaustible supply of superior building material. In short, to become a veritable land of promise, the region waited only for the coming of an industrious population endowed with sufficient cultural impetus to overcome the initial difficulties incident to the conquest of any environment. This cultural impetus the Maya provided when, probably about the beginning of the Christian Era, they penetrated the valley and set about its agricultural development and intensive occupation.

DESCRIPTION OF THE SITE.

The entire floor of this little valley, 13 kilometers long from end to end and containing possibly 30 to 35 square kilometers, is covered with the remains of former occupation: ruined stone buildings, terraces, platforms, pyramids, stairways, squares, courts, monuments, broken sculptures, pottery, and stone implements (see plates 2, *a*, and 4); indeed, the outlying sections of the city overflow into smaller adjacent valleys, such as Hacienda Grande, 5.5 kilometers to the west of the Main Structure, and Santa Rita, 12 kilometers to the northeast. Even the hillsides and mountain-tops were terraced, and not only the main valley, but also the adjoining valleys, were intensively occupied.² (See plate 3.³)

¹Galindo was the first one to mention the quarries (1834, Appendix XI, pp. 599, 600). They were described by Stephens (1841, vol. 1, pp. 146, 147) and they have been variously noted since. See Schmidt, 1883, p. 8, and Gordon, 1896, p. 29.

²Copan's sphere of cultural influence may be traced as far distant as Los Higos, 80 kilometers to the northeast across the divide in the Chamelicon Valley. The resemblances here to the art of Copan, especially between Stela 1 (Los Higos) and Stela B at Copan, are so close as to indicate that Los Higos must have been colonized directly from Copan. Paraiso, some 50 kilometers to the northeast (plate 1), where the writer found a fairly large site in 1914, evidently had drawn its artistic inspiration from the same source. And even Quirigua, itself a city of second rank, some 60 kilometers to the north on the other side of the Sierra de Merendón in the Motagua Valley (plate 1), was probably also colonized from Copan during the latter part of the Middle Period or early in the Great Period, and clearly followed the latter's artistic ideals. See pages 381-386.

³The map of the Copan Valley figured in plate 3 is based upon Gordon's map of the same region. See Gordon, 1898b, map facing page 141. Gordon's distances and directions have been accepted as substantially correct, and the principal change made has been the insertion of the location of a number of inscriptions which were omitted or were unknown when his map was made. Maudslay also figures an excellent sketch-map of the valley (1889-1902, vol. 1 of text, p. 15), showing not only the present river-bed, but also the approximate position of the old channel and giving the provenance of a few of the outlying monuments. Meye also figures a very crude sketch-map of the valley (Schmidt, 1883), giving similar incomplete data.

The principal group of ruins, or the Main Structure as it has been called by Gordon,¹ lies near the center of the valley-plain on the north bank of the stream. (See the frontispiece and plate 33.) Formerly the river flowed along the base of the hills at the southern side of the valley; but some time after the city was built, and probably after it was abandoned, the river changed its course and, cutting a new channel nearer the northern foothills, began to flow along the eastern edge of the Main Structure. (See plates 3 and 6.) As a result of this change, a great part of the substructure has been undermined and washed away, and there is now exposed a vertical surface, 33 meters in height² and about 100 meters in length, which is probably the largest archæological cross-section in the world. (See plate 5.)

Herein, as from an open book, may be read the history of the city's growth. Successive paved plaza-levels, drains, and even parts of older buildings buried in the solid mass of the substructure of this vast, irregularly shaped acropolis are clearly exposed. This growth of the Acropolis by accretion bespeaks a considerable antiquity for the Main Structure, which, however, as will appear later, is probably of more recent origin than the outlying parts of the city, certainly in its present form.

The Main Structure is composed of five large plazas surrounded by pyramids, platforms, temples, and possibly palaces,³ the whole covering an area of about 25 hectares. The first map of the city was that made by Stephens in 1839.⁴ It purports to be nothing more than a sketch-map and is full of the inevitable inaccuracies common to such, the conditions under which it was made precluding the possibility of exact work. One curious error in this map should be noted, namely, the positions of the cardinal points, which have been reversed 180°, Stephens's north being south and his east, west. In spite of this confusion, however, his map gives a fairly adequate idea of the Main Structure. It was, moreover, the first map of the city to be published, and as such possesses a bibliographic as well as a sentimental interest for the student of this subject.

The map of the Main Structure by the German engineer Meyé in 1877 is scarcely more accurate than the preceding, although made nearly 40 years later.⁵ The drawing is more simplified, and there is also figured a cross-section of the Acropolis which gives a better idea of this part of the Main Structure than can be gathered from Stephens. The measurements are also probably more accurate. On the other hand, Meyé failed to locate four of the stelæ⁶ in the Great Plaza given by Stephens, I, B, C, and 4, and, judged as a whole, his map may be said to have contributed but little to the knowledge of the site.

¹Gordon, 1896, p. 9.

²Maudslay, 1889-1902, vol. I of text, p. 26.

³There seems no reason for doubting that some of the stone buildings were the residences of the rulers, nobles, and higher priests; in fact, Landa so implies, in speaking of the northern Maya cities (Landa, 1881, p. 78).

⁴Stephens, 1841, vol. I, map facing p. 133. This takes no account of Galindo's map made 5 years earlier (1834), which has disappeared. See Appendix XI, p. 595.

⁵Schmidt, 1883. See also an English translation of the same by A. D. Savage in the same year.

⁶For the meaning of the word stelæ (singular, stela), as used in this work, see pp. 50, 51.

Maudslay's map of the Main Structure is based upon a survey made in 1885.¹ It is exceedingly accurate, probably as accurate as can be without complete excavation to determine the exact positions of corners and interior plans. He also figures several elevations, which go far toward simplifying the complexity of the Acropolis.²

The plan of Copan published by the Peabody Museum of Harvard University, based upon the survey made by Gordon in 1892-1895, enumerates 56 more important mounds at the Main Structure.³

Mr. W. V. Alford has published a map of Copan⁴ based upon a survey he made about 1893. Although fairly accurate, it falls far short of the map made by the Fourth Peabody Museum Expedition, and it contributes nothing to the knowledge of the site.

The map of the Main Structure used in this volume (see plate 6) is based upon the Maudslay and Gordon surveys and the relief map in the Peabody Museum. The drawing has been considerably simplified, a more diagrammatic presentation being desired, particularly in the manner of showing the substructures and temple ground-plans.⁵

The most prominent part of the Main Structure is the great irregular mass of pyramids, temples, and plazas, which may properly be called the Acropolis. This lofty construction or, more correctly speaking, group of constructions, reaches a maximum elevation of 40 meters above the mean low level of the river,⁶ and with the grove of trees on its summit is the most conspicuous landmark in the valley. (See plate 4.) Here are the most important temples, and here doubtless centered the religious life of the city. It contains three main plazas: the Eastern and Western Courts and the Court of the Hieroglyphic Stairway, all the principal temples facing on one or the other of these, Nos. 18, 19, 20, 21, 21a, and 22 on the first, No. 16 on the second, and Nos. 7, 9, 10, 11, and 26 on the third. (See plate 6.)

It should be remembered that the Acropolis was not all planned and built at the same time, but that it grew gradually, now a temple here, now a pyramid there. It is evident from the cross-section exposed by the river that it began in a small way. Five or six different paved plaza levels may be traced before we reach the final levels of the Eastern and Western Courts as they were at the close of the Great Period. As yet we have no exact data as to how long the Acropolis was in course of construction, that is, the period of time which elapsed between the building of the lowest and the highest plaza levels, although evidence has been presented elsewhere (page

¹Maudslay, 1889-1902, vol. 1, plate 1; and vol. 1 of text, pp. 17, 18.

²*Ibid.*, vol. 1, plates 2 and 3. In a description of Copan, written by Allen in 1885, there is a perspective drawing of the Main Structure based upon Stephens's map. This is very crude, even showing the section exposed by the river as a masonry wall. See Allen, 1885, p. 568.

³Gordon, 1896, plate 1.

⁴See Alford, 1899, p. 10.

⁵This map was made by Mr. Malcolm Willoughby at the Peabody Museum. In addition to the use of much unpublished material belonging to the Museum, the writer had the benefit of the Director's advice on several important points, particularly with reference to the ground-plans of Temples 11, 20, 21, 21a, and 22.

⁶Gordon, 1896, p. 9.

163) tending to show that it may have been commenced shortly after 9.11.0.0.0 of the Maya Era.¹ As to the date of its completion, however, we can speak with more assurance. In its present form, the Acropolis seems to have been completed about 9.17.0.0.0 of the Maya Era, some 12 years before the last stelæ were erected in the Great Plaza and probably less than 50 years before the city itself was abandoned. This date is recorded both on Temple 21*a* in the Eastern Court and on the reviewing stand in the Western Court, and also on Altar Z standing on the terrace between the two. (See plate 6.)

The earliest of these three courts, the Court of the Hieroglyphic Stairway, lies at the northern base of the Acropolis, the northernmost extensions of which form its eastern and western ends. (See plate 6.) It is 91 meters long and 43 meters wide, and is unique in having the longest inscription known in the Corpus Inscriptionum Mayarum, namely, that on the Hieroglyphic Stairway ascending the western slope of Mound 26.²

There are two stelæ in this court, M and N,³ and five temples around its sides—Nos. 7, 9, 10, 11, and 26. Of these, only Temples 11 and 26 were decorated with sculpture, but they are among the most elaborate in the city.

No trace now remains of Temple 26, but the sculptures fallen from it at the base of the substructure justify the belief that it must have ranked with Temples 11 and 22 in magnificence.

Temple 11 was excavated by Maudslay in 1885 and was found to contain some very handsomely decorated interior chambers, a hieroglyphic step, and panels.⁴

The remaining temples, Nos. 7, 9, and 10, were excavated by Gordon in 1892–1895, but they did not contain any interior sculptures.⁵

Temple 26 and the hieroglyphic stairway leading to it were completed in 9.16.5.0.0, and during the next 15 years the Eastern and Western Courts were laid out in their final forms and the series of magnificent temples surrounding them (Nos. 11, 16, 20, 21, 21*a*, and 22) were erected. This was the greatest and probably also the final period of architectural activity at Copan. Possibly the site continued to be occupied for a number of years after the close of building operations, but since the later monuments show no falling off in style, we are forced to conclude that the city was abandoned at its zenith, and before decline and decay had made themselves felt to any appreciable extent.

The Western Court would appear to have been of less importance than the Eastern Court, since only one of the principal temples, No. 16, faces upon

¹The method of transcribing Maya dates in terms of our own notation will be explained in a later section of this chapter, see pp. 47–49. The corresponding equivalents in Christian chronology will be given in Appendix II, where the whole subject of the correlation of Maya and Christian chronology has been reviewed.

²For a detailed description of this important text, see pp. 237–274 and Gordon, 1902.

³The nomenclature of the different monuments at Copan is somewhat confusing, different systems having been employed at different times. The system followed here, namely, that commenced by Maudslay and enlarged by Gordon and the writer, is explained in Appendix III.

⁴Maudslay, 1889–1902, vol. 1 of text, pp. 21, 22.

⁵Gordon, 1896, pp. 20, 21, 25.

it. This court is 70 meters long and 33 meters wide, and its floor-level is 9 meters above the general level of the plain. In addition to Temple 16, there are two platforms, 13 and 14, and a reviewing stand at the northern end. The floor of this court is strewn with sculptured fragments, probably the wreckage of the façade of Temple 16, and there are 5 or 6 sculptured monuments in it—Stela P and Altars Q, V, H', and I', and possibly Altar W.¹

Temple 16 was excavated by Maudslay in 1885, and a headless seated human figure in stone and several smaller objects were found in the single chamber preserved.² The reviewing stand at the northern end of the court was partially excavated by Gordon in 1892–1895 (right end) and was completed by the writer in 1912 and 1915. It bears the date 9.17.0.0.0 of the Maya Era.

The Eastern Court was probably the most holy part of the city. Here is the most magnificent temple, No. 22, and here clustered a greater number of sacred buildings than anywhere else in the valley (Nos. 18, 19, 20, 21, 21a). This court is 42 meters long and 33 meters wide, and the level of its floor is very slightly higher than the floor of the Western Court.

In the center of the northern side, rising from a terrace 8 meters high, is Temple 22, the most ornate, the most elaborately sculptured, in short, the most magnificently embellished structure in the Maya area, and beyond doubt the principal temple at Copan. It is 26 meters long and 12 meters wide. There is an outer chamber terminating in two small lateral chambers, and a back chamber or sanctuary. The façade, now fallen, was once decorated with an elaborate sculptured mosaic. This temple's chief claim to distinction, however, lies in the sculptural decoration above the doorway leading into the sanctuary. Two gigantic death-heads, one on either side of the interior doorway, support squatting human figures of heroic size, on top of whose shoulders curl upward two grotesque monsters, in whose coils are caught smaller human figures. The tails of these two monsters meet over the center of the doorway, where another small human figure sits.

Finally, the riser of the step leading into the sanctuary is sculptured with a double row of finely carved glyphs. The barbaric splendor of this doorway, its central position in the temple, *i. e.*, leading into the sanctuary, and the commanding position of the temple itself, dominating the principal court, all tend to indicate that in Temple 22 we have the most important religious structure in the city.

Maudslay gives some excellent views of Temple 22 during and after excavation, and also a restoration of this inner doorway. The latter, though falling far short of the original in artistic feeling, gives an adequate idea of the appearance of the approach to the sanctuary in ancient times.³

To the east of Temple 22, and arranged around the northeast corner of the Eastern Court, are three other temples, Nos. 21a, 21, and 20, all of

¹The exact provenance of Altar W is unknown (see pp. 364, 365). It has been referred to the Western Court in plate 6 for want of more accurate information as to its original position.

²Maudslay, 1889–1902, vol. 1 of text, p. 25, and vol. 1, plate 10.

³*Ibid.*, vol. 1, plate 12; see also plates 13–16.

considerable importance. Temple 21*a* has the date 9.17.0.0.0 inscribed on the riser of the step leading into its sanctuary, the same date as that on the reviewing stand in the Western Court. Temples 21 and 21*a* were excavated by Saville in 1891–1892¹ and Temple 20 by Maudslay in 1885.²

Maudslay found traces of a building along the east side of this court, most of which has now fallen into the river (see plate 6), and at its southern end there is a raised foundation which had supported another temple, No. 18.³ The latter must have been of considerable importance, as excavation disclosed a large number of sculptured fragments lying in its corridors. (See also pp. 371, 372.)

On the remaining side of the Eastern Court rises the Jaguar Stairway, leading to the terrace between the Eastern and Western Courts. Maudslay gives a partial restoration of this stairway, which seems to have been of graceful proportions and effective decoration.⁴

Galindo excavated a tomb at the eastern side of this court, just in front of the mouth of the drain leading down through the foundations of Temple 19. It contained more than fifty red earthenware dishes and pots (many filled with human bones packed in lime), several sharp-edged obsidian knives, and three small human heads carved out of jadeite or nephrite. The latter were perforated at the backs for use as pendants.⁵

The number and magnificence of the temples and other buildings surrounding this court clearly indicate that it was the center of the religious life of the city, relatively as important to the people of Copan as the Acropolis to the Athenians or Solomon's Temple to the Children of Israel.

Along the southern side of the Acropolis is a lower terrace with several less important structures.

Standing on the lofty summit of this massive accretion, probably the growth of nearly two centuries, the city spreads before one in bird's-eye presentation. Some little distance to the north is the Great Plaza with its many monuments, the largest gathering-place in the city. (See plate 7, *b*.) Nearer is the somewhat less well-defined Middle Court, with the long building 6 on its western side and Stela 3 in the middle. Still nearer, against the northern base of the Acropolis, is the Court of the Hieroglyphic Stairway, already described. To the west, for 2 kilometers, stretches a long succession of pyramids, platforms, and mounds, the remains of stone buildings. (See plate 2, *a*.) Indeed, these extend far beyond the modern village, which itself is built on the site of an important earlier group (No. 9). Finally, to the south and east the plain is covered with the remains of stone structures extending to the sides of the valley, which are somewhat nearer in these directions. (See plate 4.)

¹Gordon, 1896, pp. 17–19.

²Maudslay, 1889–1902, vol. I of text, pp. 26, 27.

³*Ibid.*, p. 26.

⁴*Ibid.*, pp. 17, 29.

⁵Galindo, 1834, Appendix XI, p. 596, and 1835*a*, pp. 547, 548.

The Great Plaza was probably the most important gathering-place in the city, since it is the largest, being 96 meters wide by 112 meters long. It has tiers of steps or seats running around three sides, giving it the effect of a vast square theater, the fourth side being open except for the pyramid mound No. 4, which stands by itself. This pyramid shows very clearly in plate 7, *b*, and its isolated and commanding position with reference to the plaza doubtless indicates that it played an important part in the spectacles and ceremonies enacted there. It is approached by a stairway on the east side, and Maudslay,¹ who excavated it in 1885, was of the opinion that a building had never stood on its summit.

Within this spacious court are to be found most of the finer stelæ: A, B, C, D, F, H, and 4, and several of the older ones, 16, 17, E, and I. In plate 7, *a* and *b*, the positions of these several monuments are indicated by arrows above, and their corresponding names appear below. Its construction would appear to have been commenced after 9.12.5.0.0 of the Maya Era, and prior to 9.13.10.0.0. At least Stela I and its altar, which record the former date, stand in a niche or recess that has been left in the terrace on the eastern side, the terrace being built around them, apparently indicating that they were erected prior to its construction; and Stela J, recording the latter date, was probably the first monument erected after the Great Plaza was laid out.

The Great Plaza was probably completed about 9.15.0.0.0 (date of Stelæ A and B) and following this, for the next 33 years, the center of building activity was shifted to the Court of the Hieroglyphic Stairway, where Temples 7, 9, 10, 26, and 11 were next erected.

In the Gordon and Maudslay maps no Middle Court is recognized, all the large area north of the Acropolis being included in the Great Plaza. For purposes of closer description, however, it has seemed better to divide this large and broken area into two courts, the Great Plaza and the Middle Court. (See plate 6.)

The former, as defined here, is a perfectly definite architectural unit; terraces extend along three sides, the center of the fourth side being occupied by a single pyramid. (See plate 6.) The latter, as used here, is rather clearly defined on the map, and even more so on the ground, Structures 4, 6, 5, 7, 9, and the L-shaped extension of 10 forming an inclosure scarcely less marked than the Great Plaza, and sufficiently a unit to warrant its separation from the larger area.

The Middle Court contains few sculptures. Stela 3 in the center is the most important; Stela 1 and its altar in the southeast corner and Altar K on the west side are the only other monuments in the inclosure. Stela 2 lies just outside of the court to the east, and Altar L is on top of the extension of Mound 10 mentioned above.

As already noted, in addition to the Main Structure and the parts of the plain immediately adjacent, the valley for a distance of several miles, both

¹Maudslay, 1889-1902, vol. I of text, p. 20.

up stream and down, is covered with the remains of stone structures, and at some of these outlying groups have been found the most archaic monuments of all. A brief description of the more important of these groups follows, their location on plate 3 being shown by the green numbers.

1. At the modern village of Santa Rita, 12 kilometers up the valley, northeast of the Main Structure, are the remains of an important settlement having at least one court. There are a number of mounds, many blocks of dressed stone, sculptured fragments throughout the village, and pieces of one monument, Stela 23. (See plate 3.)

2. About a kilometer south of the road to Santa Rita, 6.5 kilometers up the valley, northeast of the Main Structure, is a terraced hill overlooking the Copan River. On its leveled summit stand Stela 13 and the associated altar. (See plate 3.)

3. On the leveled crest of a ridge about half way to the top of the mountain, 2.5 kilometers east of the Main Structure, is Stela 12, the eastern Piedra Pintada. (See plate 3.)

4. Just west of the Quebrada Seca, on the first bench of foot-hills above the road to Santa Rita, 2.5 kilometers northeast of the Main Structure, are the remains of a rather extensive group. There are a number of stone buildings, and the wealth of sculptured fragments which strewn the ground indicates its former importance. Fragment Z' was found here. (See plate 3.)

5. On the west bank of the Copan River, 1 kilometer east of the northern end of the Main Structure, is a small group of mounds surrounding a plaza, in the center of which stands Altar W'. (See plate 3.)

6. Just east of the quarries, on the first bench of foot-hills above the road to Santa Rita, 0.5 kilometer north of the Main Structure, is a small group containing a very elaborately sculptured temple, which, judging from the fragments lying around, must have been one of the most beautiful in the valley. (See plate 3.)

7. On a low ridge overlooking the valley, 1 kilometer south of the Main Structure, is a group of mounds. Nearby is a rock-cut shrine, hewn from an outcropping of the native rock, and consisting of several grotesque figures and altars, the most conspicuous of which is a gigantic toad; hence the name Shrine of The Toad, here suggested for this group. (See plate 3.)

8. West of the Main Structure 1 kilometer is a group of pyramids and mounds, and seven monuments: Stela 6 and its altar, Stela 5 and its two altars, Altar X, and a human figure, the two last found in the foundations of Stela 5. (See plate 3.)

9. On the site of the modern village of Copan, 2 kilometers west of the Main Structure, are numerous remains of an important settlement. There was at least one large plaza, now occupied by the plaza of the modern village, surrounded by a number of pyramids, mounds, and the following monuments: Stelæ 20, 21, 22, 24, 25, 15, 18, and 7 and Altars P', Q', U', S, U, T, E', L', and M' and a number of fragmentary inscriptions V'. Some of the foregoing are the most archaic monuments found at Copan, notably Stelæ 20, 22, 24, 15, and 25, and Altars P', Q', L', and M'. With the exception of the Main Structure, this is the largest group in the valley. (See plate 3.)

10. On the site of the modern cemetery, 3 kilometers west of the Main Structure, is a leveled area and two monuments, Stelæ 8 and 9, and in the immediate vicinity on a lower bench to the south is a third, Altar T'. (See plate 3.)

11. West of the Main Structure 4 kilometers is an important group of mounds and pyramids with the remains of a number of stone buildings, but no sculp-

tures or monuments. This group occupies a comparatively level stretch toward the western end of the valley-plain, and is quite large. (See plate 3.)

12. On the crest of the hill forming the western boundary of the valley, 4.5 kilometers west of the Main Structure, are Stela 10 (the Western Piedra Pintada) and Altars J' and K', found in its foundations. The summit has been leveled and a retaining-wall built along the eastern edge. (See plate 3.)

13. At Hacienda Grande, in a small valley entering the main valley from the north, 5.5 kilometers west of the Main Structure, are the remains of an extensive settlement, including several courts and plazas and one stela, 19, with two altars; this was the third largest settlement in the valley. (See plate 3.)

14. In some cliffs along the Rio Sesesmil, 6.5 kilometers north of the modern village, are a number of caverns showing signs of human occupation. (See plate 3.)

15. At Llano Grande, 8 kilometers north of the modern village, is a plain covered with the remains of stone structures, but no sculptures or monuments. (See plate 3.)

All of these groups, with the exception of Nos. 9 and 10, which are parts of the same settlement, and date from the Early Period, probably date from the Middle Period. This is almost certainly true of Nos. 1, 2, 3, 8, 12, and 13, and probably also true of Nos. 11 and 15. Nos. 4, 5, and 6 and possibly No. 7 date from the Great Period.

The settlement at the site of the modern village, Nos. 9 and 10, would appear to have been the first in the valley. By the beginning of the Middle Period, however, the occupation of the entire region was well under way; and finally, by the beginning of the Great Period, the Main Structure had out-distanced all the others and had become the religious and governmental center of the tribe.¹

In closing this description too strong emphasis can not be laid upon the fact that every available spot in the valley was intensively occupied in ancient times. Wherever one strays from the beaten trails, one encounters the vestiges of former occupation: fallen buildings, fragments of elaborate sculptural mosaics, pyramids, platforms, terraces, and mounds. Indeed, it was not until his seventh and most recent visit to Copan (June 1919) that the writer saw Groups 4 and 6 for the first time, although both are within 2.5 kilometers of the Main Structure. It seems probable, therefore, that future investigation will bring to light still other groups, until it will be found that practically the entire valley from Santa Rita-at the eastern end to Hacienda Grande at the western end was one continuous settlement, one city.

HISTORY OF THE SITE.

The derivation of the name Copan is not clear. Indeed, it is even doubtful whether the city was known by this name in ancient times. The earliest-known use of the name as applied to this particular group of ruins is in a letter from Don Diego Garcia de Palacio, Oidor of the Audiencia Real

¹For other descriptions of Copan, consult the bibliography on page 617 *et seq.*



a. The Copan Valley looking west, showing ruined buildings between the Main Structure and the present village.



b. The modern village of Copan looking west.

Courtesy of the Peabody Museum

of Guatemala, to Philip II, King of Spain, written at the city of Guatemala (now Antigua Guatemala) on March 8, 1576. In this letter Palacio gives a description of the ruins which he says were called Copan:

"Near here, on the road to the city of San Pedro, in the first town within the province of Honduras, called Copan, are certain ruins and vestiges of a great population, and of superb edifices, of such skill that it appears they could never have been built by a people as rude as the natives of that province."¹

This letter clearly establishes the association of the name Copan with the group of ruins now known by that name, as early as the first generation after the Spanish Conquest, 1524-1576, but does not give any details as to its derivation or meaning.

Fuentes y Guzmán, who wrote more than a century later (1689), gives the meaning as "bridge": "The word Copan signifies bridge. Outside this city are health-giving waters, and the famous river of the same name traverses it."²

Gordon suggests the meaning "Capital of Co" on the grounds that *pan* in the Maya language means banner, or, as used in names of cities, it was equivalent to capital.³ Neither of these etymologies, however, appears entirely satisfactory: the first, though possible, is rather far-fetched, and the second largely begs the question, since it makes no attempt to translate the first half of the name. Indeed, there is considerable doubt as to whether the word is of Mayan origin at all. It is well-known that Nahua migrations swept down the west coast of Central America as far south as the Peninsula of Nicoya, Costa Rica, at a very early date, certainly long prior to the Spanish Conquest; Copan, therefore, may be a Nahua place-name applied to the region, long subsequent to the occupation and abandonment of the site now known by that name.

This hypothesis, moreover, has something more substantial in its favor than historical possibility. The particle *pan* in Nahuatl used as a suffix

¹Squier, 1860, pp. 88, 91. Some of the earlier historians, Herrera, for example, made use of the contents of this letter, but took no notice of the part describing the ruins of Copan. The first to call attention to this important early description of the site was Don Juan Bautista Muñoz y Ferradis, a Spanish historian, who mentions the account in a report of 1785 (Brasseur de Bourbourg, 1866, p. 8). Four English translations of it, either in whole or in part, have been published: (1) Squier, 1858, pp. 242, 243, gives only the part describing the ruins; (2) Squier, 1860, pp. 88-97, gives the entire Spanish text as well as an English translation; (3) Maudslay, 1889-1902, vol. I of text, pp. 5-7, gives the translation of the part describing the ruins only; (4) Gordon, 1896, pp. 45-48, gives the Maudslay translation and the corresponding part of the Spanish text. In addition to the foregoing English translations it has been published in Spanish in Pacheco, 1866, tom. VI, pp. 37-39; in the *Gaceta Oficial* (of Honduras), tom. 6, numero 91, Nov. 11, 1868, pp. 1-4; in Fernández, 1881, tom. I, pp. 1-52; and in Gordon, 1914; in French in Ternaux Compans, 1840, pp. 42-44; and in *Notice sur le Yucathan*, 1843, tom. xcvi, pp. 38-40; and in German, Frantz, 1873, pp. 1-62.

García de Palacio's description, it will be found, is accurate and restrained, far more so, indeed, than that of Fuentes y Guzmán (1689) given in Appendix V. It might almost, as Maudslay happily observes, "have been written by any intelligent visitor within even the last few years." (Maudslay, 1889-1902, vol. I of text, p. 7.)

In spite of the fact that it has already been so generally and satisfactorily circulated, it has seemed advisable to republish the Squier-Maudslay translation here, because of the great importance of the account, as being the first contemporary reference to the ruins known. (See Appendix IV.)

²Fuentes y Guzmán, 1689, p. 211. The second and third parts of this work have never been published. See Appendix V for his complete account.

³Gordon, 1899, p. 41.

with substantives means *in*, *on*, *inside*, *during*, and *for*; for example, *apan*, "on the water"; *tlalpan*, "on the earth"; and *neçaualizpan*, "during Lent, during fasting."¹ It occurs very frequently in Nahua place-names, as *Chimalpan*, "on the shields,"² *Teotlalpan*, "in the lands of the gods,"³ and even *Coapan*, "in the waters of the snakes."⁴

The particle *pan* used by Gordon in his etymology, however, is not the above, but another derived from the Nahua word "pantli," meaning flag, banner, wall, line, or row.⁵

This latter derivation is somewhat supported by Galindo, who gives Copante or Copantli as variant spellings, but without stating his authority for so doing.⁶ Whether this is a naïve attempt on the part of Galindo to connect the name with the Nahua word *pantli*, or whether it is a bona-fide variant, unfortunately can not be determined, since he cites no authority for its use.

In the Maya language even less satisfactory etymologies are to be found. The Motul Dictionary, composed about 1577, at the convent of Motul, northern Yucatan, gives *cop* = rope, liana, or things twisted, and *pan*, banner or standard, the latter clearly borrowed from the Nahuatl. Copan might thus perhaps signify "a twisted banner." The same dictionary gives for the word *copaan*, "twisted or rolled up," *i. e.*, the past participle of *cop*.

The only other Maya place-name containing the particle *pan* with which the writer is familiar is *Mayapan*, a large site, in northern Yucatan, the meaning of which is usually given as "the standard of the Maya,"⁷ clearly a borrowed derivation from the Nahuatl.

That Copan is Nahua rather than Maya appears to be the best explanation of the word; if so, it could not have been the name by which the place was originally known. The old name doubtless had been forgotten long before the time of the Spanish Conquest, and unless the hieroglyph by which it was expressed should be identified, it will probably never be known.

In the Spanish period, according to Fuentes y Guzmán, Copan was one of the villages of the Province of Chiquimula de la Sierra, of the Kingdom of Guatemala. This latter unit of the Spanish colonial empire comprised roughly the greater part of Central America and the state of Chiapas in southern Mexico. Its affairs were administered by a governor and captain-general, whose capital was at Santiago de los Caballeros de Guatemala, now Antigua Guatemala.

The Province of Chiquimula de la Sierra was subdued in 1524 by Juan Perez Dardón, Sancho de Baraona, and Bartolomé Bezerra, acting under the orders of Pedro de Alvarado, the conqueror of Guatemala. These were the first Europeans to penetrate this region, but they have left no notice of a large native city or civilized tribe in the vicinity of the ruins.

¹Simeon, 1885, p. 274.

²Peñafiel, 1885, pp. 108, 109.

³*Ibid.*, p. 187.

⁴*Ibid.* p. 77.

⁵Simeon, *ibid.* p. 332.

⁶Galindo, 1834, Appendix XI, p. 595, and 1836a, p. 76.

⁷Brinton, 1882, p. 119. About 1200 A. D. northern Yucatan was subjected to a strong Nahua influence (Morley, 1913a, pp. 66, 67, 74, 75; also 1915, pp. 4-6, and 1917a, pp. 147, 148) and many Nahua words were doubtless introduced into the Maya language about this time, possibly *pan* among others.

Six years later, in 1530, the country having been thrown into disorder by the actions of the Visitador Orduña, the natives of Chiquimula, following the example of many other tribes, seized the opportunity to throw off the Spanish yoke. When this news reached the capital, an expedition under the leadership of Hernando de Chaves and Pedro Amalin was hastily organized and dispatched to the revolted province. After several preliminary battles, notably at Jalpatagua and Mitlan, in which the natives were defeated, the Spanish troops laid siege to Esquipulas, the Indian capital of the region. This was a strongly fortified place belonging to a powerful Indian lord and was defended by a large number of his people. Hernando de Chaves called upon them to surrender, offering peace to the inhabitants should they comply, as had been commanded by order of the King in such cases. After four days' deliberation the Indians decided to surrender, saying that they did so "more out of respect to the 'public tranquillity than from fear of the Spanish arms." Some of the chief men were given as hostages, the Spaniards took possession of the town, and the whole province of Chiquimula was subdued in the month of April 1530.¹

One of the chief instigators of this revolt had been the lord of a neighboring town, which Fuentes y Guzmán calls Copan, one of the largest and richest places in the vicinity;² and as soon as the region about Esquipulas had been pacified, Hernando de Chaves set about its subjugation also. The lord of Copan, one Copan Calel, had a powerful army of more than 30,000 warriors, drawn not only from his own tribe but also from the neighboring towns of Zacapa, Sensenti, Guixar, and Ustua. The town was surrounded by a moat, and when the Spaniards under Chaves advanced to the attack they were resolutely beaten off, losing many men. Indeed, had it not been for the treachery of a native chief, who had a grievance against Copan Calel, the attack would probably have failed altogether. This traitor, having escaped to the Spanish camp, betrayed a way across the moat. The Spaniards forced this passage, and after further hard fighting entered the town. Copan Calel bravely resisted their advance, but was finally obliged to give way before superior equipment and military training. He fled to the extremity of his domains, where he organized another force and again took the field, but the back of the revolt was broken and shortly after he sent ambassadors to Chaves to sue for peace. Later he was received by the Spanish commander at Copan with great distinction and kindness.

Fuentes y Guzmán narrates these events at some length in his *Historia de Guatemala*, where he attempts to identify this town of Copan with the site whose inscriptions form the subject of the present investigation.³

¹Both Fuentes y Guzmán (1689, pp. 169-186) and Juarros (1808, tom. II, pp. 151-156) give the details of this expedition. The latter would appear to have derived at least part of his information, that dealing with the subjugation of the Province of Chiquimula, directly from the archives of the Cabildo of Guatemala City, since he cites as his reference for these events, lib. I de Cabildo, fol. 162.

²Fuentes y Guzmán, *ibid.*, p. 200.

³*Ibid.*, pp. 200-210. Juarros (1808, tom. II, pp. 151-156) gives the same account, doubtless copied from the former.

So important are these passages in the present connection that they have been given in full in Appendix V.

There seems to have been no doubt in the minds of either Fuentes y Guzmán or his copyist Juarros that the Copan conquered by Hernando de Chaves in 1530 and the group of ruins described as early as 1576 under this name by Garcia de Palacio were one and the same place. This conclusion, however, has been seriously challenged by practically all modern students, and, as will appear later, it now seems safe to discard it altogether. The Copan of the two accounts never could have been the same place.

Fuentes y Guzmán's description of the ruins is so fanciful, indeed, as to raise a question as to whether or not he ever saw them himself.¹ Some of his statements are so extraordinary, so exaggerated that, taking them at their face value, he stands guilty either of extreme gullibility or of gross misrepresentation. His description, however, although far less accurate than the Garcia de Palacio account of the preceding century (1576), is interesting, and it is important because of its early date (1689). Since the original has never been completely published, a translation of it is given in Appendix V. Juarros, in his history of Guatemala, published in 1808,² adds nothing new to Fuentes y Guzmán's description of the ruins.³ In fact, he follows the latter so closely that one suspects that he, too, never visited the site. Juarros's account appears to have been extensively copied by later writers, however, and is largely responsible for the general dissemination of Fuentes y Guzmán's exaggerations or misstatements.

After Garcia de Palacio's visit in 1576 there is a long period—more than two and a half centuries—before the next description of the ruins by an eyewitness. In April 1834, Colonel Juan Galindo, acting under a commission from the government of Central America,⁴ visited Copan and made a study of the site. Galindo was an army officer and had been commandant at Flores in the Department of Peten, where he had made extensive explorations. He would seem to have had rather more than average experience in such matters, having prior to his visit to Copan already undertaken similar investigations at Palenque and Utatlan (Santa Cruz Quiché). He spent several months at Copan, making plans, views, and copies of the inscriptions and figures, and in writing a long report on the ruins and their history, which he says "the government of Central America intends publishing."⁵ This report, however, appears never to have been published; and indeed has only very recently come to light in Mr. William Gates's large collection of Maya manuscripts at Point Loma, California. (See Appendix XI.) A summary

¹Maudslay (1886, p. 572) also expresses the belief that Fuentes y Guzmán did not visit the ruins himself, but wrote only from hearsay.

²*Compendio de la Historia de la Ciudad de Guatemala*, by Señor Don Domingo Juarros, Guatemala, 1808. An English translation of this appeared in 1823 under the title *A Statistical and Commercial History of the Kingdom of Guatemala*, London, 1823; and a second Spanish edition in Guatemala in 1857.

³Juarros, 1808, tom. I, pp. 43, 44.

⁴At this time, the five Central American Republics were united under one government: the United States of Central America (1823-1840).

⁵Galindo, 1835a, p. 545.

of its contents is to be found in several letters which Galindo wrote from Copan in June 1834 to scientific societies both in Europe and America.¹

Galindo's report is superficial, and contributes but little to the previous knowledge of the site. His historical speculations are highly extravagant and correspondingly valueless. Thus, for example, he asserts with considerable emphasis that America is the cradle of the human race: "The Indian human race of America I must assert to be the most ancient on the globe";² and his contention that Copan was colonized by the "Tultecos" from Mexico about the close of the sixth century after Christ is, of course, equally preposterous. He follows the error of Fuentes y Guzmán and Juarros in believing that the site was occupied as recently as 1530;³ and he seems to have known of no description of the ruins based on a personal examination previous to his own.⁴

One of the most interesting points brought out by Galindo is that none of the stelæ appears to have fallen since his time. He says in this connection: "There are seven obelisks still standing and entire, in the temple and its immediate vicinity; and there are numerous others, fallen and destroyed, throughout the ruins of the city."⁵

To-day there are 8 stelæ standing at Copan: A, B, D, F, H, J, N, and P, one more than given by Galindo. He could hardly have failed to

¹Two of these were written on the same day, June 19, 1834, and but for one or two paragraphs are identical. One (Galindo, 1835) appeared in the London Literary Gazette and Journal of Belles Lettres, Arts, Sciences, etc., No. 965, Saturday, July 18, 1835, pp. 456, 457. This letter opens with a paragraph, referring to an earlier article of his on Palenque, which had also appeared in the same weekly, but omits the sentence referring to the coming publication of his report and drawings by the government of Central America.

The second letter (Galindo, 1835a) was addressed to the Hon. T. L. Winthrop, president of the American Antiquarian Society. Curiously enough, as printed this letter bears the heading "Copan, June 19, 1835," clearly a misprint for 1834, as proved by the original of Galindo's report to the government of Central America in the Gates collection. See Appendix XI. Barring the omission of the first paragraph and the insertion of the sentence referring to the projected publication of the report, the two letters are identical. This letter was published in the Transactions of the American Antiquarian Society, vol. II, pp. 543-550.

Galindo appears to have written another letter of 36 pages, also from Copan, accompanied by 10 drawings, to the Société de Géographie de Paris about the same time: "Enfin une lettre en 36 pages datée de Copan avec dix dessins assez bien exécutés" (Galindo, 1836, p. 268). Neither this letter nor the accompanying drawings seem to have been published, though two summaries appeared, one in the Bulletin de la Société de Géographie (deuxième série, tom. v, pp. 260, 267-272, 288), cited here as Galindo, 1836, and the other in Antiquités Méxicaines (tom. I, première partie, pp. 73, 75, 76), cited here as Galindo, 1836a. These two summaries are also practically identical.

The ten drawings which accompanied Galindo's letter to the Société de Géographie were: "1. The general plan and a view of the great temple of Copan, bathed by the river of that name, and commonly called *las ventanas* or the windows; the ruins are imposing; they are distinguished by many columns, sculptured and painted monuments standing by themselves, which the author compares to obelisks. 2. Some plans and elevations. 3. Some details of figures which ornament the obelisks and altars." (Galindo, 1836a, p. 77.)

Hamy (1886, p. 83) says five lithographs of these drawings were made at Bineteau's about the year 1836, but that after a few proofs had been struck off the drawings were effaced from the stones before any titles were engraved. He compared these proofs with Galindo's originals, which were still in the archives of the Société de Géographie in 1886.

²Galindo, 1835a, p. 545.

³"Many may smile at our ideas of the word antiquity, when informed that this place has fallen to ruin only since the Spanish Conquest in 1530" (Galindo, 1835a, p. 545); and again, "The Spaniards found Copan inhabited and in the summit of its perfection." (*Ibid.*, p. 549.) And again, "Copan continued to be inhabited, even after the conquest, but in a state of perpetual decadence. Some 75 years ago [circa 1760] the cultivation of tobacco was brought from there to the plains of Santa Rosa, and the population gradually decreased to a village of three houses situated to the west of the Sesesmil canyon [the site of the present village], which formerly comprised the western suburb of the city." (Appendix XI, p. 603.)

⁴"I am the only one, he said, who has examined the ruins of Copan, and who has written about them." (Galindo, 1836a, p. 73.)

⁵Galindo, 1835a, p. 548.

see the 5 in the Great Plaza, A, B, D, F, and H, and the 2 on or near the Acropolis, N and P, which leaves J as the one he missed. Stela J stands off to one side by itself (see plate 6), and when the entire city was overgrown, as in Galindo's time, it could very easily have been overlooked. Four years later Stephens made the same omission.

The several descriptions of Copan noted up to this point not only had a very limited circulation, as we have seen, but were also brief and superficial, scarcely more than mentioning the wonders of the place. Indeed, the only published accounts of the ruins prior to Stephens's time were those of Juarros and Galindo, which do not appear to have attracted general attention. Moreover, they contain nothing of importance not given in greater detail by later writers, and they have been included here chiefly for bibliographic purposes.

The first writer to make the ruins of Copan generally known outside of Central America was the American diplomat, traveler, and explorer, John L. Stephens; and for practical purposes his excellent description of the city has all the value and merit of original discovery.

Stephens was sent to Central America, in October 1839, on a special confidential mission by President Van Buren, the object of which having been fulfilled, or failing, he was at liberty to travel where he pleased. He visited a number of important archæological sites in the Maya field, notably Uxmal, Palenque, Ocosingo, Santa Cruz Quiché, and Copan, and published a fascinating account of his adventures, entitled *Incidents of Travel in Central America, Chiapas, and Yucatan*. He was accompanied by the English artist Catherwood, who made the illustrations for this book, original drawings of great merit and beauty. Rarely indeed has such a happy combination of circumstances arisen as that which permitted these two men to work together; rarely has the brush so effectively supplemented the pen—so effectively, in fact, that Stephens's text illuminated with Catherwood's drawings has remained the classic book of travel on the Maya field for more than three-quarters of a century. It was one of the most widely read books of its time in this country and went through ten editions within three months of its publication. It was republished in England, Germany, and Mexico, and achieved great popularity abroad. Its astonishing success would seem to have been due, not only to the simple and clear style of Stephens's writing and the quaint charm of Catherwood's drawings, but also to the unusual and diverting character of the subject-matter. Here for the first time the world read of the wonders of the great ruined cities of Central America and saw reproductions of their strange monuments; and here for the first time the fundamental importance of this great native civilization in the history of the New World began to be perceived. The many editions of this book and its sequel, *Incidents of Travel in Yucatan*, accurately reflect the widespread interest which they aroused.

Stephens, as already noted, gave the first description of Copan which attained a general circulation. He not only disproved the fabulous stories

of Fuentes y Guzmán, but at the same time succeeded in investing the ruins with an even greater charm and mystery, all the more remarkable because he told the truth. Although he missed the real significance of much that he saw, for example, failing to recognize in the overgrown mounds the remains of fallen buildings, and although he was unable to decipher the hieroglyphic inscriptions, that discovery being reserved for another generation, Stephens acutely gauged the importance of what he saw and left behind him a vivid and glowing description of its wonders, which will stimulate research in this field for all time.

After the visit of Stephens there appears to have been no important original contribution to the knowledge of the site for nearly 40 years. Bancroft, in his *Native Races of the Pacific States*, gives a description of Copan based chiefly on that of Stephens, and in an accompanying bibliography he notes the names of several visitors, none of whom, however, seems to have left behind any important contribution to the literature of the site.¹

In 1877 a German engineer, Meye, visited Copan and made drawings of a few of the principal sculptures, as well as the map of the site already mentioned. These were published with an introductory text by Dr. Julius Schmidt, which contains little essential information not already given by Stephens and much that might better have been omitted. It lacks the interest of Stephens and the accuracy of later writers. Meye's drawings are equally unsatisfactory. Only five of the stelæ are figured (A, D, N, F, and H) and three of the independent altars (U, Q, and T). No one of these is complete, and in all cases the faces showing the inscriptions have been omitted. Moreover, he has failed signally to catch the spirit of the originals, and for all purposes Catherwood's drawings, although made nearly 40 years earlier, are far better.²

The first intensive study of Copan was made by the English explorer, Alfred P. Maudslay, in 1885. Four years earlier, in January 1881, he had spent three days at the site, on "a journey of curiosity," and was so impressed with what he saw that he was induced to undertake its scientific investigation. His own words clearly set forth the happy chance which resulted in the inauguration of this important research, and they are quoted below:

"My first journey through the Central-American forests in search of the ruins of ancient Indian towns, during the winter of 1882-83³ [1880-1881], was merely

¹Bancroft, 1882, vol. iv, pp. 78-81. Squier gives but scant notice to Copan, simply stating that important aboriginal remains are found there. (Squier, 1858, pp. 241, 242, and 1855, p. 133.) Scherzer was deterred from visiting the ruins in 1856 by the padre of Santa Rosa, who told him a recent landslip had much injured their appearance. (Scherzer, 1857, vol. II, pp. 86, 87, 94, 95.) Brasseur de Bourbourg says a French Jesuit, Cornette, visited the site in September of the same year (Brasseur de Bourbourg, 1857-1859, vol. I, p. 96, note 3); and in the same work (vol. II, p. 493, note 2) mentions having seen plans and drawings of Copan and other Maya cities by a French architect, M. César Daly, which the latter intended to publish in the *Revue Générale de l'Architecture*, which does not appear to have been done. Bancroft mentions additional slight information given before the American Ethnological Society in February 1860 by a Mr. Center, and in April 1862 by a Mr. Hardcastle, the latter based on original notes gathered during a sojourn of several weeks at the ruins. Brasseur de Bourbourg himself visited Copan twice, once in 1863 and again in 1866, but made only brief allusions to the ruins in his writings (1867a, tom. II, pp. 298-311). Finally, in addition to the foregoing, there are a number of second-hand descriptions based upon the accounts of Juarros, Galindo, and Stephens, chiefly the last, which contain little or no new information.

²See Schmidt, 1883.

³This is probably an error for the winter of 1880-1881, as he states elsewhere, several times, that he first visited Copan and Quirigua in January 1881.

a journey of curiosity, and I had no intention whatever of making a study of American archæology. However, the interest awakened by the sight of the truly wonderful monuments which it was my good fortune to behold induced me to undertake other and better-equipped expeditions, and the kindly encouragement and splendid liberality of the editors of the '*Biologia Centrali-Americana*' led to the results of my journeys being published in the present form."¹

In these few modest words Maudslay describes the greatest archæological investigation ever accomplished in the Maya field and the most important publication by which the science has been enriched.

Again, as in the case of Stephens and Catherwood, a rare combination made possible the successful prosecution and completion of a second great work in this field. Through the generosity of F. Ducane Godman and Osbert Salvin, the editors of the *Biologia Centrali-Americana*, Maudslay was enabled to publish his drawings, maps, plans, elevations, and photographs in a manner commensurate with their worth and the importance of the subject. Thus was inaugurated a memorable undertaking which covered a period of 20 years (1882-1902) and which took Maudslay to Central America no less than seven times.² During this period he visited practically all the largest Maya cities then known and secured material for extensive reports upon several of them. It is indeed no exaggeration to say that the appearance of these elaborate publications made possible the intensive study of the hieroglyphic inscriptions for the first time. His method of treatment was ambitious, nothing less than a double presentation of practically every monument figured, both by photograph and by drawing. In the latter field he was peculiarly fortunate in having secured the services of Miss Annie Hunter,³ who for 18 years devoted herself to this task with telling results. Her delineations of the glyphs are extremely accurate, and with but few exceptions (noted hereinafter where found) they may be trusted, so far as glyphic details are concerned, with the same degree of confidence as the originals themselves. Their chief fault is that in many cases they are overdrawn, made more beautiful than the originals really are. This is particularly true of her drawings of texts from the Early and Middle Periods, when Maya delineation had not yet reached the perfection which it attained in the Great Period. Miss Hunter's drawings are standardized to the best period of Maya art, and consequently those of the earlier texts have been somewhat overesthetized. So far as the subject-matter of the glyphs is concerned—that is, where the dates are perfectly clear—this makes little difference, but when it is necessary to depend upon the stylistic criteria for accurate dating, the style of the carving must be portrayed as well. With this single reservation, Miss Hunter's drawings are as serviceable for study as the originals or casts.

Maudslay's work at Copan covered many lines of investigation. In addition to the magnificent set of photographs and drawings of the monu-

¹Maudslay, 1889-1902, vol. 1 of text, p. iii.

²1881, 1882, 1883, 1885, 1889, 1891, 1894.

³A few of the earlier drawings are from the hand of Mr. E. Lambert, who also did excellent work.

ments, published in the *Biologia Centrali-Americana*, which was noted above as being the first reproduction of the Maya inscriptions sufficiently accurate to permit their intensive study, he found time to mold the most important sculptures, to carry on extensive excavations, and to survey and map the Main Structure.¹

Although Stephens was the first to suspect that the town called Copan, conquered in 1530 by Hernando de Chaves, was not the same as the great ruined city now known by that name,² it was Maudslay who finally exposed this error. As early as Garcia de Palacio's time, *i. e.*, within a generation of the Spanish Conquest, the city was in ruins, and Garcia de Palacio himself states "that they could never have been built by the natives of that province." The attempt to identify the town conquered by Chaves in 1530 with the ruins of the same name was first made by Fuentes y Guzmán, as we have seen, and was later followed blindly by Juarros and Galindo, who are chiefly responsible for the general dissemination of this erroneous idea.

Maudslay's work at Copan proved—as in fact Garcia de Palacio actually had written three centuries earlier—that the site must have been in ruins long before the Spanish Conquest. He ably presents this view in the following quotation, which, although written more than 30 years ago, still expresses the result of the latest investigations on this point:

"Only one conclusion appears possible, which is, that Copan, Quirigua, Palenque, Menche,³ and Tikal were all deserted and buried in the forest before the Spaniards entered the country, and that the great tract of country over which these ruins are scattered was then inhabited by such races as the Itzaes and the inhabitants of Chacujal, who, if they were the descendants of the builders of these wonderful pueblos, had lost the power, the skill, and the culture to which these broken sculptures and ruined edifices alone bear witness."⁴

Maudslay visited Copan thrice, the first time for three days in 1881; the second time for five months in 1885, when the greater part of his work was done; and the third time for three weeks in 1894 for the Peabody Museum

¹Maudslay's plan of the Main Structure appears in vol. 1, plate 1 of his work mentioned above, plates 2 and 3 showing birds-eye views of a plaster relief map of the same. Maudslay also published a plan of the Main Structure, a sketch-map of part of the valley (showing the Main Structure and Group 9), and several cross-sections of the Acropolis, in the *Proceedings of the Royal Geographical Society* for 1886. See Maudslay, 1886, 568-595, 608.

²Stephens, 1841, vol. 1, pp. 99, 101, 160.

³This important site has been known under several different names. Rockstroh, the first European to visit the place, called it Menché Tinamit, Menché being the name of a former Indian chief of the region, Bol Menché, and Tinamit or Tenamitl, the Nahuatl word for "city." (Maudslay, 1889-1902, vol. II of text, p. 40, and vol. II, plate 76.) This name, as Maler points out, is unsatisfactory because the two parts are derived from different languages, Menché or Mehenche, "young forest," being Maya, and Tinamit, or Tenamitl, Nahuatl. Maler himself suggests the name Yaxchilan (1903, p. 105), a Maya word *yax*, meaning "greer," and *chilan*, "that which is scattered about" and by extension, "stones," hence Yaxchilan, "green stones." (Maler, 1903, p. 104, note 1.) This is the name by which the site is now generally known, not only in the immediate vicinity, but also in this country, and moreover has the merit of being of pure Maya origin.

Maudslay, who follows Rockstroh here, takes exception to Spinden's use of Yaxchilan (1913, pp. 242, 243), on the grounds that the discoverer should have the privilege of naming the site. This, though true as a general proposition, should not be allowed to apply when linguistic propriety is in question, and Maler's name Yaxchilan appears preferable to Menché Tinamit.

As early as 1885, Charnay named this site Lorillard City (Charnay, 1887, p. 436) in honor of Pierre Lorillard of New York, who partly defrayed the expenses of his work. This inappropriate name did not become fixed in the nomenclature of the science, however, and now is all but forgotten.

⁴Maudslay, 1886, p. 591. Gordon, writing a decade later, reaches a similar conclusion. (Gordon, 1896, p. 3.)

of Harvard University. To describe all his activities at Copan alone would carry us beyond the limits of the present investigation; moreover, in order properly to appreciate them, it is not only necessary to see the finished product, the section on archæology of the *Biologia Centrali-Americana*, but also to understand the tremendous difficulties of climate, of country, and of political disturbance which stood in the way of their fulfillment. Indeed, Maudslay's indefatigable labors, covering many years in an adverse environment, easily constitute the most important field contribution to Maya archæology.¹

We come next to the third great contribution to the knowledge of Copan, namely, the work of the Peabody Museum of American Archæology and Ethnology of Harvard University. This research, which contemplated an exhaustive and definitive investigation of the site, was inaugurated in 1891 through the efforts of the Curator, Frederic W. Putnam, and C. P. Bowditch. Unfortunately, at the conclusion of the Fourth Expedition in 1895, when the most promising results from the excavations were just beginning to be realized, the government of Honduras abruptly revoked the edict under which the Museum had been working, thereby terminating the investigation, which was never resumed.²

The work of the Peabody Museum at Copan is of first importance. In spite of the fact that it was unhappily interrupted almost before it had gotten under way, the four expeditions undertaken resulted in the accumulation of an enormous amount of new material. Many new monuments were found, which were photographed and molded;³ and extensive excavations were undertaken, which resulted in the discovery of new inscriptions,⁴

¹Maudslay has written several shorter articles on his work at Copan, the titles of which will be found in the bibliography. A larger work is his *A Glimpse at Guatemala and some Notes on the Ancient Monuments of Central America* (see Maudslay, A. C. and A. P., 1899), which was written in collaboration with his wife.

²In 1889 Mr. E. W. Perry obtained from the government of Honduras a concession to found a National Museum of Antiquities at Copan, and a Society of Antiquarians of which he was to be the permanent president. This project was never realized, but in 1891 Mr. C. P. Bowditch obtained all the rights pertaining to Mr. Perry through this concession. This arrangement proving impracticable, a new plan was proposed to President Bogan of Honduras, which was accepted, and an edict was promulgated under the terms of which the Peabody Museum acquired the care of the antiquities of the republic for a period of 10 years, with the additional right of excavation and permission to retain half of the objects found. Under this liberal arrangement work was begun at once. The First Expedition (1891-92) was in charge of Mr. Marshall H. Saville; the Second Expedition (1892-93) was in charge of Mr. John G. Owens; the Third Expedition (1893-94) was in charge of Mr. Alfred P. Maudslay; and the Fourth Expedition (1894-95), in which the American Museum of Natural History also participated, was in charge of Dr. G. B. Gordon.

In 1894 there was a change of administration in Honduras. President Bogan, who had always been very friendly to the Copan project, giving way to a new administration which at first annulled the Bogan edict, but later reaffirmed it. However, it became impracticable for the Museum to prosecute the research any longer, and excavation was suspended after the Fourth Expedition. With the close of this project there came to an end the most ambitious investigation of a single site ever attempted in the Maya field. The opening years were of such promise as to raise great expectation for the future, and the untimely conclusion came as a severe blow to the science, from which it has recovered but slowly.

³In his report on the work of the First Expedition, Saville mentions 24 stelæ, of which 19 were previously known. The 5 new stelæ discovered by the First Expedition would seem to have been 6, 7, 8, 9, and 11. Saville reported 8 stelæ standing in 1892: A, B, D, F, H, J, N, and P; 13 stelæ fallen and broken: C, E, I, M, 1, 2, 3, 4, 5, 7, 10, 11, and 12; and 3 fallen but entire: 6, 8, and 9. Stela 6 has been broken since. Gordon (1896, p. 33) says there are 23 monuments known—he omits stela 12—of which 15 are in, or about, the Great Plaza: A, B, C, D, E, F, H, I, J, M, 1, 2, 3, 4, and 11. The remaining 8 he gives are N, P, 5, 6, 7, 8, 9, and 10. Stelæ 13, 15, 16, and 19 would seem to have been discovered by the Third or Fourth Expedition.

⁴The Hieroglyphic Stairway of Mound 26, the hieroglyphic step in Temple 21a, and the hieroglyphic step on the reviewing stand in the Western Court should be included here.

pottery, stone implements, and ornaments of stone and carved bone.¹ A wall was built around the Main Structure to protect it from the cattle roaming over the valley,² and finally the Main Structure itself was again surveyed and mapped by Gordon, and data for a map of the entire valley was secured.³ Incidental to these latter activities, the monuments throughout the valley were given their final nomenclature,⁴ and the mounds at the Main Structure their final numeration.

The photographic record made by the several Peabody Museum expeditions is unusually complete, though unfortunately only a very small part of it has been published.⁵ These rich repositories of new material have been generously placed at the writer's disposal by Mr. C. C. Willoughby, the Director of the Museum, and Dr. A. M. Tozzer, Curator of Middle American Archæology and Ethnology.

No review of the work of the Peabody Museum at Copan would be complete without some reference to the untimely death of Mr. John G. Owens, director of the Second Expedition. While visiting the coast to make arrangements for obtaining molds of the Quirigua monuments, he contracted a malignant fever of the country. Two days after his return to Copan he fell violently ill, and after a brave struggle lasting 21 days, he finally succumbed to the disease on February 17, 1893. This tragic event has cast a perpetual mantle of sadness over the ruins, and standing by his simple grave, at the base of one of the monuments in the Great Plaza, one is deeply sensible of the heavy loss occasioned by his removal, and of the memory of a pioneer who died on the firing line.⁶

The results of these several investigations at Copan may be briefly summarized as follows: Stephens first made the site generally known, Maudslay first began its preliminary scientific study, and finally the Peabody Museum first undertook its intensive investigation, the work of the last being a continuation and development of the work of the second. To Stephens, Maudslay,

¹The excavations at Copan, particularly of the tombs, yielded a satisfactory return of objects. A number of different types of pottery were found, including plain, painted, incised, modeled, and even glazed wares. Beads, pendants, and ear-plugs of jadeite (or nephrite,) and shell were recovered in great numbers, many delicately carved with considerable skill. Obsidian and flint knives of different sizes, spear points, carved bones, and animal skulls, human teeth filled with jadeite, bone implements, cinnabar, pearls, and sea-shells were some of the other objects found during the course of the work. The collection of pottery obtained, although not large, is fairly representative, and its intensive study, particularly that of the dated pieces—i. e., pieces found in the chambers underneath dated monuments—would doubtless shed much light on the history and development of Maya ceramics.

²Unfortunately the function of this laborious construction has been directly reversed. The cattle are now kept inside the inclosure made by this wall instead of outside; in other words, it is now used as a corral, defeating the very end for which it was designed.

³This appeared in Gordon, 1898*b*, p. 141, and is the only map of the entire valley which has ever been published.

⁴Except those discovered or named subsequent to 1895. See Appendix III for a full discussion of the nomenclature of the Copan monuments.

⁵The Peabody Museum has published three papers by Gordon on the work at Copan, as follows: *Prehistoric Ruins of Copan, Honduras*, Mem. Pea. Mus., vol. 1, No. 1, see Gordon, 1896; *Caverns of Copan*, Mem. Pea. Mus., vol. 1, No. 5, see Gordon, 1898*b*; and *The Hieroglyphic Stairway Ruins of Copan*, Mem. Pea. Mus., vol. 1, No. 6, see Gordon, 1902. In addition to the foregoing, Gordon has written several other scientific and popular articles, see Gordon, 1898, 1898*a*, 1899, 1902*a*, 1902*b*, 1909, 1913, 1916, and 1918, and Saville has also written several others. See Saville, 1892, 1892*a*, 1894, and 1916.

⁶Owens was buried in front of the altar of Stela D in the Great Plaza. A plain flat cement monument surrounded by a rough stone wall marks the grave. When the writer and Mr. Morris were at Copan, in 1912, they placed a headstone in the inclosure with the following inscription: "J. G. Owens. Died February 1893. A Martyr to Science."

and the Peabody Museum, indeed, we are indebted for practically all that was known about Copan until within the past decade.

Since the close of these larger operations, the site has been more generally known and more frequently visited, particularly during the last 10 years. No important contributions to its special literature, however, have appeared during this period, with the notable exception of Dr. H. J. Spinden's work on Maya Art, which, because of its fundamental character, deserves especial mention here. In 1906 Spinden first began an intensive investigation of the subject-matter and general principles of Maya Art; and three years later, in 1909, in a thesis presented to Harvard University for the doctorate, he was able to establish the course of its development and to arrange the monuments in a stylistic sequence which was found to agree precisely with the sequence of the dates actually recorded upon them.

The results of Spinden's researches were first announced in a chronological table published by the American Museum of Natural History in July 1910;¹ next before the Seventeenth International Congress of Americanists, held in Mexico City in September of the same year, in a brief preliminary paper,² and more fully in *A Study of Maya Art, its subject-matter and historical development*, published by the Peabody Museum three years later.³ Spinden first established his stylistic sequence from a study of the Copan sculptures, which are more extensive than those of any other Maya site, but the principles of development, first worked out here, have since been found to apply throughout the Maya field. This important discovery at once quickened the coordinate study of Maya chronology. It had long been held by the leading authorities that the closing dates on the different monuments, at least in the great majority of cases, correspond with the dates of their erection—in a word, that these terminal dates were the contemporaneous dates of the monuments upon which they were severally recorded.⁴ The accuracy of this view was speedily confirmed by Spinden's discovery, for it was soon found that when the monuments of any site are arranged according to their proper positions in the stylistic sequence (the least advanced first, the most advanced last) the resulting sequence is identical with the chronological sequence, the earliest dates being found on the crudest monuments and the latest dates on those stylistically most developed.

Indeed, Spinden's stylistic criteria have proved so reliable that by this means alone it is now generally possible to date monuments as within fixed periods of 52 years in length, even when portions of the inscriptions are effaced. This has been of great help in determining the age of fragmentary

¹Spinden, 1910.

²*Ibid.*, 1912.

³*Ibid.*, 1913.

⁴Goodman, than whom no one has done more toward deciphering the Maya inscriptions, held this opinion in part. He believed the Initial Series declared the contemporaneous dates of the monuments, and in many cases it is true that they do. (Goodman, 1897, pp. 147, 148.) Seler reaches a similar conclusion (1902-1908, vol. 1, pp. 783, 784). Thomas regards the theory of Goodman and Seler as the best yet propounded, but accepts it with considerable caution; indeed, he suggests an amendment, namely, that the theory be slightly more generalized so as to apply to the latest date in the inscription (*i. e.*, not only the Initial Series date) as that denoting the time of erection or event commemorated, which is the view now generally held (1904, p. 299). See also Bowditch, 1903a, p. 3.

texts, since, from the exigencies of the Maya chronological system and the elaborate character of their chronological records, such as the presence of several sets of checking factors, for example, an inscription has to be almost entirely obliterated to prevent its being dated to within at least a fixed period of 52 years.

By means of the stylistic criteria it has also been possible to correct some of the earlier readings. Thus, for example, Goodman¹ deciphered the date of Stela D as 9.5.5.0.0, an impossibly early date for this monument on stylistic grounds. Seler² subsequently re-read the date correctly as 9.15.5.0.0, but it remained for Spinden to authenticate this latter reading by means of the stylistic criteria present.

That the Maya monuments were, as a general rule, erected on or near the closing dates recorded upon them is now generally recognized³—that is, their contemporaneous character is now generally admitted—but it should be remembered that final proof of this important point was not forthcoming until the stylistic sequence was shown to agree with the chronologic sequence.

The writer first began his study of the Maya inscriptions in 1905, but it was not until five years later that he began to collect material in the field for a special study of the Copan inscriptions. In 1910 he visited Copan for two days, in behalf of the School of American Archæology, with Dr. E. L. Hewett, the Director, and Mr. J. L. Nusbaum; at this time, however, little more than a preliminary examination of the inscriptions was attempted. He was at Copan again in 1912 with Mr. Earl Morris, for the same institution, when a more detailed study was undertaken, but at the end of the first week he was taken ill and obliged to leave immediately after his recovery.⁴ In 1915 he again visited Copan in company with Mr. Percy Adams, this time in the interest of the Carnegie Institution of Washington. The expedition stayed at the site for six weeks, when by far the greater part of the new material in this volume was collected.⁵

He was at the site for a week in 1916, being accompanied by Dr. G. Underhill and Mr. A. W. Carpenter, the physician and photographer of the expedition, respectively, and by two temporary collaborators, Mr. W. H. Holmes, Head Curator of Anthropology at the United States National Museum, and Mr. S. K. Lothrop, of Harvard University.⁶ The panorama of the site shown in the frontispiece was made by Mr. Holmes at this time, and was kindly placed at the writer's disposal for use herein. It gives a better general con-

¹Goodman, 1897, p. 130.

²Seler, 1902-1908, vol. 1, pp. 768-771.

³The so-called "prophetic" dates, like those on Altar S and Stela 8, to mention only inscriptions at Copan, are exceptions to this general rule.

⁴These two visits were made in connection with a much larger piece of work, namely, the excavation of the neighboring ruins of Quirigua, Guatemala. This important project was inaugurated in 1910, and five expeditions have visited the site to date: 1910, 1911, 1912, 1914, and 1919, the first four being under the auspices of the School of American Archæology and the last under the Carnegie Institution. Several new inscriptions were found, Stela S, Altar R, and the inscribed cornice and steps of Structure 1. See Hewett, 1911, pp. 117-134; 1912, pp. 163-171; 1916, pp. 157-162; Morley, 1912, pp. 96, 97, 1913, pp. 339-361, and 1919, pp. 317-321.

⁵See Morley, 1915a, pp. 343-346.

⁶See *ibid.*, 1916a, pp. 337-341.

ception of the city than can be obtained from a personal examination on the grounds.

In 1917 he was at Copan for four days with Mr. John Held, jr., as artist and draftsman,¹ again in 1918 for two days,² and again in 1919 for four days,³ the last two trips being made without assistants.

All the writer's notes on the Copan inscriptions accumulated during these seven different visits have been embodied in the present study—those made in 1910 and 1912, as well as those made in 1915–1919 for the Carnegie Institution, and acknowledgment is here made to the Managing Board of the School of American Archæology for permission to include the work of the first two years in this final report.

HISTORY OF THE DECIPHERMENT OF THE MAYA HIEROGLYPHIC WRITING.

Before attempting to define the scope of the present investigation (see the next section), it is first necessary to review the history of the decipherment of the Maya hieroglyphic writing, for it is only from that perspective that the especial province of this research can be properly comprehended.

From Stephens's time down to the present day, the Maya hieroglyphic writing, probably the foremost intellectual achievement of ancient America, has been a storm-center of scientific investigation. Perhaps no other problem connected with American archæology has excited so much attention or provoked so much ill-considered speculation. The Maya themselves have been variously derived from the ancient Egyptians; from the Ten Lost Tribes of Israel; from the Javanese; and even from the visionary folk of fabled Atlantis;⁴ but it has only been within the past three decades that we have at last begun to know something definite about them, partially to decipher the intricate characters of their strange graphic system, and to approximate its general meaning.

The basic discovery upon which rests all subsequent research in this field was the finding of a manuscript history of Yucatan in the archives of

¹See Morley, 1917c, pp. 285–289.

²See *ibid.*, 1918a, pp. 269–276.

³See *ibid.*, 1919, pp. 320, 321.

⁴The origin of the Maya civilization has been a fruitful field of inquiry since the days of the Spanish Conquest, when the *conquistadores* first beheld the great aboriginal cities of Middle America; and there is scarcely a country on the face of the globe which has not at one time or another been identified as the original home of the Maya race. From Lord Kingsborough's nine large folio volumes, which sought to prove that the Maya were descended from the Ten Lost Tribes of Israel, down to the present time, innumerable earnest but misguided attempts have been made to derive the Maya directly from some nation or people of the Old World. Some indeed have even gone so far as to reverse this at least natural procedure, and have contended that Egypt was colonized from America, claiming for the Maya an antiquity of more than 11,000 years (Le Plongeon, 1886). Unfortunately, such aberrations as these have not entirely disappeared before the advance of modern research, since we find within the past decade earnest searchers after the truth solemnly connecting the Maya civilization with the comparatively recent cultures of Java and southern India (Arnold and Frost, 1909), or, by more or less circuitous routes of migration, with the equally remote civilization of ancient Egypt. (Smith, 1916–1917, pp. 190–195, 241–246.) The last even contends that the elephant's head occurs as a decorative element on Stela B at Copan, (1915–1916, pp. 340, 341, 425, 593–595). He has been ably refuted by Tozzer (1916, p. 592), Spinden (1916, pp. 592, 593), Goldenweiser (1916, pp. 531–533), and Means (1916, pp. 533, 534). Such extravagant hypotheses would scarcely merit even passing notice were it not for the fact that their very spectacularity renders them peculiarly attractive to the general public. It is, therefore, perhaps not superfluous to repeat that the Maya civilization was a native American product, developed in its entirety in the New World, and probably not far from the region where its extensive remains are now to be found.



a. General view of the Main Structure looking east, showing the plain covered with the remains of stone buildings.



b. General view of the Main Structure looking south from the hill near the quarries.

the Royal Academy of History at Madrid in 1863. In the winter of that year the eminent French antiquarian, Abbé Brasseur de Bourbourg, while on a scientific mission to Spain, found in the archives of that establishment a manuscript entitled *Relación de las cosas de Yucatan, sacada de la que escribió el padre Fray Diego de Landa de la orden de San Francisco*, and bearing the date MDLXVI.¹ The author of this manuscript was no less a person than the Padre Diego de Landa, who later became the fourth bishop of the Diocese of Yucatan and Cozumel with seat at Merida, and who filled that see from 1573 until the time of his death in 1579.² He was one of the first Franciscans to enter Yucatan (1549) and one of the most zealous in converting the Indians from their idolatry. His zeal in this latter direction eventually brought him into difficulties with his ecclesiastical superior, Bishop Toral, who accused him of usurping higher functions than were his right; and he later returned to Spain and appeared before the Council of the Indies to answer the charges growing out of this controversy. He was tried before a body of "seven learned persons of the Kingdom of Toledo," in 1565, and was finally exonerated of all the charges against him in 1569. On the retirement of Bishop Toral, four years later, he was named to succeed to the vacant see, which he occupied until his death in 1579, as noted above.³

The especial value of Landa's "relación," a veritable Maya Rosetta Stone indeed, lies in the fact that it was composed during the first generation after the Spanish Conquest, 1541-1566; and the information which it contains was obtained by him directly from natives who had reached mental maturity under their own social, political, and religious institutions before the shock of European conquest had forever shattered the native régime. Indeed, Landa actually states that one of his informants was Don Juan Cocom, a lineal descendant of the last ruler of Mayapan, and a man particularly well versed in the ancient learning of his people.⁴ And with such information as this

¹This valuable manuscript has been thrice published, as follows: (1) By the Abbé Brasseur de Bourbourg with a French translation, Paris, 1864. (2) By Juan de Dios de la Rada y Delgado, Madrid, 1881, as an Appendix to his *Ensayo sobre la interpretación de la escritura hierática de la América Central*, a translation into Spanish, of Leon de Rosny's work of the same name. (3) By the Royal Academy of History, Madrid, in the *Colección de Documentos Inéditos relativos al descubrimiento, conquista y organización de las antiguas posesiones españolas de ultramar*, Segunda serie, tom. 13, Relaciones de Yucatan, II, Madrid, 1900. Of these, the first is by far the poorest; Brinton, in a critical comparison of the first two editions (1887), points out its shortcomings. Brasseur de Bourbourg omits, without a word of explanation, fully one-sixth of the original (the last part of the manuscript) and inserts a number of chapter headings not found in the manuscript at all, in addition to making many errors of translation. The second edition is the only complete one of the three, *i. e.*, having all the text and drawings of the original manuscript. Unfortunately it was limited to 200 copies, all large folios, and is very rare. All references to Landa in the present work, however, are to this second and only complete edition. The third edition is not only comparatively rare but is also incomplete, lacking all the part describing the calendar and annual feasts, including the drawings of the glyphs, the katun-wheel, and Landa's famous "alphabet." There is an unpublished English translation by Bowditch in the Peabody Museum library.

²Molina Solís (1897, pp. 13-78) reviews the evidence bearing upon the creation of the Diocese of Yucatan and Cozumel, which he concludes was established after 1547 and before 1553, Fray Juan de San Francisco being named the first bishop. The latter resigned before 1552, never having gone to Yucatan, in which year Fray Juan de La Puerta was named second bishop of the diocese. The latter died at Sevilla on the eve of his departure for New Spain with twenty frailes, and it was not until 1562 that the third bishop, Fray Francisco de Toral, reached Merida.

³Landa himself describes the affair at some length (1881, pp. 79, 80), and the whole controversy has been made the subject of a special paper by Medina (1913, pp. 484-496).

⁴"The successor of the Cocomes, named Don Juan Cocom, who has since become a Christian, was a man of great reputation, learned in their affairs, and of remarkable sagacity and intelligence in native matters. He was very intimate with the author of this book, Fray Diego de Landa, and told him many facts concerning the antiquities." (Landa, 1881, p. 76.)

at his disposal, he speaks with an authority not equaled by that of any other early European writer.

Landa describes the manners and customs of the Maya of Yucatan at considerable length, giving even a few tantalizing glimpses of their history. By far his most important contribution, however, is his description of the native calendar, in which he gives drawings of the hieroglyphs for the 20 days of the Maya month and of 18 out of the 19 divisions of the Maya year,¹ and also a series of signs, which he claimed were the letters of the Maya alphabet. The last was at once hailed with acclaim by Americanists as the long-sought key to the hieroglyphic writing, and a number of investigators, more credulous than critical, hastened into print with so-called "interlinear translations" of the texts. In every case, however, these have broken down under "higher criticism," until it has finally become necessary to abandon all hope of translating the Maya inscriptions by means of the Landa alphabet, some even going so far as to brand it as a "Spanish fabrication."²

But if we must reject Landa's alphabet in its entirety, as a phonetic key to the inscriptions, as now seems necessary, we are still deeply indebted to him for his illuminating observations on the Maya calendar, by means of which only we have been able partially to decipher the Maya writing.

The first real advance in interpreting the Maya writing was made by Professor Ernst Förstemann, of the Royal Library of Dresden, who in the decade from 1880-1890, while Maudslay was doing valuable service in the field, published a number of studies on a Maya hieroglyphic manuscript in the Royal Library at Dresden. Using Landa's values for the day and month signs, Förstemann finally worked out the basic principles of Maya chronology, and in 1887 he announced the fundamental discovery that the long numbers of the Dresden manuscript designate particular days in Maya history and are all counted from the same starting-point, a sort of Maya birth of Christ, to borrow an analogy from our own chronology.³

Curiously enough, an American scholar, Mr. J. T. Goodman, of Alameda, California, working independently upon different subject-matter, *i. e.*, the inscriptions on the monuments, and without knowledge of Förstemann's researches, duplicated the latter's remarkable discovery a little later, 1883-95. Förstemann seems to have made his discovery as early as April

¹Landa gives no sign for Uayeb (1881, pp. 96, 97).

²Valentini (1880). Many have been the attempts to decipher the manuscripts by means of the Landa alphabet. Brasseur de Bourbourg was the first in this field (1869-1870); and he was quickly followed by others, de Rosny (1876), Le Plongeon (1885), La Rochefoucauld (1888), Thomas (1893), and Cresson (1892, 1892a, and 1892b). These various attempts to explain the Maya writing on a purely phonetic basis have entirely broken down, and at present this "school" has few followers. See Brinton, 1895, pp. 14-17, for an able summary of these studies.

³Förstemann, 1887. An English translation of this important paper was published by the Bureau of American Ethnology (see Förstemann, 1904, pp. 393-472). Tozzer (1907, pp. 153-159) gives a brief sketch of Förstemann's life and a fairly complete bibliography. Only a few of the more important titles bearing directly on the present investigation, however, have been included in the bibliography at the end of this memoir. The results of his studies on the manuscripts are given in most complete form in his commentaries on the three codices, Förstemann, 1901, 1902a, and 1903, all three of which have been translated into English, and the first and most important, published as volume IV, No. 2, of the papers of the Peabody Museum (1906). He published two facsimile reproductions of the Dresden Codex (1880 and 1892), thus making this important manuscript accessible for general study, and also wrote a large number of shorter articles, only a few of which deal with the inscriptions and only one with those at Copan (1904a). His especial province, however, was the manuscripts, and here he easily ranks first.

1885;¹ while Goodman, on the other hand, did not announce his results until 1895, though his preface states that he had been at work on the inscriptions for 12 years prior to that date.² Perhaps the fairest solution is to recognize the priority of Förstemann in the field of the manuscripts and that of Goodman in the field of the monuments. Goodman's preeminence in the field of the inscriptions, moreover, is beyond question. In addition to working out the Maya calendar system as used therein, he was the first to make known the existence of the head-variant numerals, the so-called Maya Arabic notation, and to identify their different values; and finally he devised his justly famous chronological tables, the logarithmic short-cuts of Maya arithmetic.³

As early as 1890 Maudslay had realized the importance of the first seven glyphs in each text, and had given them the name Initial Series, by which they have since been known.⁴ In fact, in one of the earliest plates of the section on archæology of the *Biologia Centrali-Americana*, he figured nine of these Initial Series together, an arrangement which clearly brought out their similarity.⁵

Because it made accessible, for the first time, accurate copies of the originals, the publication of Maudslay's work gave tremendous impetus to the study of the Maya inscriptions. Goodman testifies in this connection that it alone made possible his results; and other students were not slow to devote themselves to this problem, investigating not only Goodman's conclusions, but also the drawings upon which they were based. Goodman's report appeared in 1897, and two years later Professor Eduard Seler, of Berlin, published a long discussion of the Copan, Quirigua, and Palenque texts, based upon Maudslay's reproductions.⁶ This contains little new material, however, Goodman having covered the ground rather completely.

Simultaneously with the publication of Seler's studies, Cyrus Thomas, of the Bureau of American Ethnology, published an extended commentary on Goodman's work.⁷ This is a critical examination of the latter's conclusions, with which it agrees in the main. Some new points are brought out, but in general Goodman's theories are sustained. The most valuable

¹"It was a source of special satisfaction to me that in April 1885 I was able to determine the sign for zero and soon afterward to discover the way in which the Mayas expressed the higher numbers, so that they can now be read from zero up to millions. Upon this discovery is based the largest part of my later researches." (Förstemann, 1894, p. 78.) And again: "In the year 1885 the reading of all Maya numbers up to millions was found here [in the Dresden Codex], 1887, the origin of the historical Maya reckoning was found, and also the form of the calendar date composed of two numbers and two hieroglyphs was recognized [*i. e.*, 4 Ahau 8 Cumhu]," (Förstemann, 1902b, p. 150.)

²Goodman, 1897, p. iii. Goodman's results were published as the Appendix to the section on archæology, of the *Biologia Centrali-Americana*, in 1897.

³For a brief review of the scientific and literary achievements of Goodman, see Morley, 1919a, pp. 441-445.

⁴Maudslay, 1889-1902, vol. I of text, p. 40.

⁵*Ibid.*, vol. I, plate 31; also in vol. II, plate 65, and vol. IV, plate 92.

⁶Seler 1899, pp. 670-738, and 1900, pp. 188-227. These were published in the *Verhandlungen der Berliner anthropologischen Gesellschaft* for November 18, 1899, and for March 17, 1900, and later in Seler's collected works (1902-1908, vol. I, pp. 712-836). There is an unpublished English translation of these articles in the Peabody Museum by Bowditch, who has had practically all of Seler's works translated.

⁷Thomas, 1900, pp. 693-819; also 1904, pp. 197-305.

contributions of Thomas are rather in the field of the manuscripts than in that of the inscriptions. His commentaries on the codices are particularly valuable and in some lines parallel the work of Förstemann.¹

Although most of his writing preceded the period of precise decipherment, Dr. D. G. Brinton, of the University of Pennsylvania, also made valuable contributions to the general field of Middle American archæology, and particularly to its aboriginal history. He published many original sources, the *Maya Chronicles*, the *Annals of the Cakchiquels*, etc., with highly illuminative notes and comments by himself, and with justice he may be called the "Father of Maya History," in which field for many years he stood practically alone.² At one time it was the fashion to discredit these native chronicles and to regard them as untrustworthy and of little consequence, but now the whole trend of Maya research is tending toward their complete authentication as reliable sources for the reconstruction of ancient Maya history, a position taken and ably defended by Brinton 37 years ago.³

The work of Mr. C. P. Bowditch deserves especial mention in this section. It was chiefly through his instrumentality that the Peabody Museum first entered the field of Maya archæology 30 years ago, and it has been largely due to his continued interest and support that investigations have been maintained there ever since. In addition to these activities, he has made important original contributions to the study of the hieroglyphic writing. His first paper on this subject was published in 1900, and during the next decade he brought out a number of articles containing much new information. The more important results of his researches are to be found in his *Numeration, Calendar Systems, and Astronomical Knowledge of the Mayas*, published in 1910, a scholarly presentation of the subject, embodying not only all the previous knowledge but also the fruit of his own extensive labors.⁴

¹Thomas's writings are fairly voluminous. Most of them are to be found in various governmental publications, chiefly those of the Bureau of American Ethnology, with which he was connected for many years. His more important contributions will be found in the bibliography under the following heads: Thomas, 1882, 1888, 1894, 1897, 1900, and 1904.

²Stephens was the first to publish one of these chronicles (1843, vol. II, pp. 465-469). This particular manuscript, the Book of Chilán Balam of Mani, had been discovered at Ticul, Yucatan, by the Yucatecan antiquarian, Pío Pérez, just before Stephens's visit to the country. Realizing its importance, Stephens prevailed upon Pérez to allow him to publish the original Maya text and an English translation. A more scholarly treatise on the same manuscript is that by Valentini, *The Katunes of Maya History* (see Valentini, 1879), which contains a critical analysis of the chronological data, and an able defense of its historical accuracy. Brinton republished the Maya text with an English translation in his *Maya Chronicles* (Brinton, 1882, pp. 89-135).

³Brinton, 1882. Brinton's bibliography is extensive and varied. Chamberlain (1899, pp. 215-225) states he wrote over 150 books and articles from 1859 to 1898. His contributions to the study of the Maya hieroglyphic writing alone are too voluminous for complete citation here. They cover almost every phase of the subject, and in the field of history, as noted above, are without equal. The more important titles will be found in the bibliography under the following heads: Brinton, 1882, 1882a, 1882b, 1885, 1886, 1886a, 1887, 1890, 1894, 1895, and 1896. See also Culin, 1900.

⁴Bowditch, 1910. The hieroglyphs figured in this book were drawn by Mrs. A. J. Tretheway, whose work is both painstaking and accurate, and compares favorably with that of Miss Hunter. Mrs. Tretheway uses a heavier line than Miss Hunter, however, and is less prone to overdraw. While this characteristic gives her work a less finished appearance than that of Maudslay's illustrator, it probably makes it correspondingly more accurate, particularly in the delineation of texts from the Early and Middle Periods. For Bowditch's other publications, see the bibliography.

The great expansion of interest in the Maya field following these spectacular advances in the decipherment of the Maya hieroglyphic writing, and corresponding advances in the whole general field of Middle American archæology, have led to the establishment of courses of instruction in these subjects at some of the larger American universities, notably at Harvard, where this work is now in its second decade under Dr. A. M. Tozzer.

The writer's previous publications on the Maya inscriptions have been confined to brief articles on special phases of the subject, and to a text-book entitled *An Introduction to the Study of the Maya Hieroglyphs*, published as Bulletin 57 of the Bureau of American Ethnology in 1915, a work especially designed to meet the requirements of the beginner.¹

SCOPE OF THE PRESENT INVESTIGATION.

The present investigation is limited to a consideration of the chronological data found in the Copan inscriptions. In the present state of knowledge it has appeared inadvisable to extend the research beyond this point into the realm of the undeciphered glyphs, since too little is yet known about them even to approximate their meanings.

So far as they have been deciphered, however—and it is now possible to read about one-half of the characters—the Maya inscriptions have been found to deal exclusively with the counting of time. Brinton, with his usual acumen in such matters, clearly perceived this important truth 25 years ago, and in his *Primer of Mayan Hieroglyphics* gave it precise expression:

“The frequency and prominence of these elementary numerals in nearly every relic of Mayan writing, whether on paper, stone, or pottery, constitute a striking feature of such remains, and forcibly suggest that by far the majority of them have one and the same purpose, that is, counting; and when we find with almost equal frequency the signs for days and months associated with these numerals, we become certain that in these records we have before us time-counts, some sort of ephemerides or almanacs. This is true of all the Codices and of nine out of ten of the inscriptions. Here, therefore, is a first and most important step gained toward the solution of the puzzle before us.”²

Unlike the inscriptions of every other people of antiquity, the Maya records on stone do not appear to have been concerned—at least primarily—with the exploits of man, such as the achievements of rulers, priests, or warriors—in short, with the purely personal phenomena of life; on the contrary, time in its many manifestations was their chief content.

The Maya priesthood, in whose hands exclusively rested the knowledge of the hieroglyphic writing, conceived time more elaborately than any other people the world has ever known at a corresponding stage of general culture. They observed and recorded its more obvious phenomena, the apparent revolutions of the Sun, Moon, Venus, and possibly other planets, solar eclipses, planetary configurations; and, most important of all, they accomplished its exact measure: the accurate toll of the passing days. Of first

¹Morley, 1915. For the writer's shorter articles see the bibliography.

²Brinton, 1895, p. 18.

importance in this latter connection were the contemporaneous dates of the different monuments. These are usually found at the beginnings of the inscriptions, hence Maudslay's name "Initial Series," by which they are known, and they are of such amazing accuracy as to be fixed within a period of 374,000 years, a tremendous achievement for any time-count, European or otherwise.¹

This truly remarkable chronological system was counted from a fixed starting-point, and it furnishes an exact measure of time, by means of which, it already appears probable, all related or connected cultures will eventually be datable.

This point is of such importance as to warrant further elaboration. By means of the Maya chronological yardstick it is already possible to measure roughly the time element in the cultures immediately adjoining the Maya on the north: the Zapotec, the Miztec, the Totonac, the Toltec, and the Aztec; indeed, even to date them with considerable accuracy.² But in addition to this, it is eventually hoped, by means of overlapping culture horizons, to extend this dating as far south as the great cultures of Peru and Ecuador,³ and as far north as the intensive cultures of the southwestern section of the United States.⁴ In short, it now appears as within the range of probability that ultimately all cultures of Middle America and of the contiguous parts of North and South America will be referable, by means of such

¹If, as the writer believes, the eight time-periods recorded in sequence on Stela 10 at Tikal all belong to one and the same Initial Series, the starting-point of Maya chronology itself was fixed in a much grander chronological scheme, a chronology which at the time this monument was erected had already reached more than 5,000,000 years and might even have been expanded to 64,000,000 years without breaking down, a truly geologic conception of measured time. See Morley, 1915, pp. 114-127.

²By means of this accurate chronological control, Spinden (1917) has been able to work out provisional chronologies for the above peoples (*ibid.*, chapter III), which are probably more accurate than Egyptian chronology in the Old Empire or Babylonian chronology at the time of Hammurabi.

³Means (1917a, pp. 383-389, and 1918, pp. 152-170) has already attempted this with considerable success for the high cultures of Ecuador and Peru, and now the question would seem to be largely one for the archæologist, *i. e.*, tracing closer cultural resemblances in pottery types, stone-carving, metal technique, and general esthetic designs between Central and South America. When these have been definitely established, the time element can be measured from the northern, that is to say, the Maya end.

⁴A beginning has already been made in this field also. The discovery of copper bells of Mexican origin at a number of archæological sites in Arizona and New Mexico clearly points to trade relations between the Pueblo Indians and the tribes of central Mexico in pre-Columbian times.

Sites where such bells have been found are Awatobi (see Fewkes, 1898, pp. 628 and 629, and figure 261), Black Falls (*ibid.*, 1904, p. 50), Chaves Pass (*ibid.*, p. 111 and figure 67), Taylor (*ibid.*, pp. 162 and 163, and figure 108), and Tonto Basin (Hough, 1914, p. 37 and figure 78), all in Arizona; and Tularosa, New Mexico (Hough, *ibid.*, p. 38 and figure 79), and more recently at Aztec, New Mexico (Morris, 1919, p. 100 and figure 71a). Copper bells were also found at Pueblo Bonito, New Mexico, by the American Museum Expeditions under Putnam in 1896 *et seq.*; and they have been reported as far east as the eastern part of Tennessee. (Thomas, 1894a, pp. 376 and 714, and figure 252.)

These bells very closely resemble copper bells found in the Sacred Cenote at Chichen Itza, Yucatan (New Empire), which can hardly have been carried thither before 1200 A. D.

The same is true of the so-called Mexican cloisonné or encaustic ware, also found both at Pueblo Bonito and at Chichen Itza in the Sacred Cenote, although indigenous to neither site, the region of manufacture being in the northern part of the State of Jalisco, Mexico—Totoate, Hacienda Estanzuela, etc., and the specimens found having had to be carried at least 1,600 kilometers to have reached either place. See Lumholtz, 1902, vol. II, pp. 460-462 and plates 13-15, Hrdlička, 1903, p. 385 and plate 39, and Spinden, 1917, pp. 161-164.

Finally, the Andover-Pecos Expedition of 1915, under Kidder, found a Mexican spindle-whorl in a pre-Columbian stratum of the refuse heap at Pecos, New Mexico.

These are sporadic cases to be sure, but they indicate none the less surely that further excavation in these areas will undoubtedly develop other points of contact between the Maya and the contiguous cultures of Middle, North, and South America, by means of which alone, in default of local chronologies, will it ever be possible to date the latter accurately.



a. The main structure looking southwest, showing the great cross-section exposed by the river.



b. The main structure looking northwest.

interlocking relationships, to the standard section of ancient American history furnished by the Maya inscriptions.

In addition to this purely chronological matter in the Maya inscriptions, there is also a mass of related astronomical data, as noted above. For example, the apparent revolutions of the Moon, Venus, and probably other planets were accurately observed and recorded. Solar eclipses were predicted; and larger time-periods exactly containing different smaller time-periods were evolved.¹ Moreover, as we gradually press our way into the meaning of the undeciphered glyphs, it is becoming increasingly apparent that these intricate graphic symbols deal more with the subject-matter of astronomy than with the details of history.

With far-reaching vision and profound understanding, Brinton, in another passage written over 25 years ago, long before the results of modern research had justified such a conclusion, closely prognosticated this condition:

"A careful examination of Dr. Förstemann's remarkable studies, as well as a number of other considerations drawn from the Codices themselves, has persuaded me that the general purpose of the Codices and the greater inscriptions, as those of Palenque, have been misunderstood and underrated by most writers. In one of his latest papers Professor Cyrus Thomas says of the Codices: 'These records are to a large extent only religious calendars'; and Dr. Seler has expressed his distrust in Dr. Förstemann's opinions as to their astronomic contents. My own conviction is that they will prove to be much more astronomical than even the latter believes; that they are primarily and essentially records of the motions of the heavenly bodies; and that both figures and characters are to be interpreted as referring in the first instance to the sun and moon, the planets, and those constellations which are most prominent in the nightly sky in the latitude of Yucatan.

"This conclusion is entirely in accordance with the results of the most recent research in neighboring fields of American culture. The profound studies of the Mexican calendar undertaken by Mrs. Zelia Nuttall have vindicated for it a truly surprising accuracy which could have come only from prolonged and accurately registered observations of the relative apparent motions of the celestial bodies. We may be sure that the Mayas were not behind the Nahuas in this, and in the grotesque figures and strange groupings which illustrate the pages of their books we should look for pictorial representations of astronomic events.

"Of course, as everywhere else, with this serious astronomic lore were associated notions of astrology, dates for fixing rites and ceremonies, mythical narratives, cosmogonical traditions and liturgies, incantations, and prescriptions for religious functions. But through this maze of superstition I believe we can thread our way if we hold onto the clue which astronomy can furnish us."²

¹The best example of this last is the period of 2,920 days, containing 8 solar years of 365 days each, and 5 Venus years of 584 days each, so elaborately set forth in pages 24 and 46-50 of the Dresden Codex. See Bowditch, 1910, pp. 63-68, 229; Förstemann, 1906, pp. 110-120, 182-196; Morley, 1915, pp. 31-32, 276-278; Spinden, 1917, pp. 109-112; and Seler, 1902-1908, vol. 1, pp. 618-667. For an English translation of the last, see Seler, 1904a, pp. 355-391.

²Brinton, 1895, pp. 32, 33. This prediction is all the more remarkable in view of the state of knowledge on the subject when it was made. Goodman's important publication had not yet appeared, and the Maya chronological system as recorded in the inscriptions was but imperfectly comprehended. In Maya archæology Brinton's contributions are for the most part fundamental and permanent. Thus his *Maya Chronicles* (1882), published a generation ago, in spite of many inaccuracies, contains the essentials for the entire reconstruction of Maya history. To an extraordinary degree, doubtless due as much to an innately philosophical mind as to his breadth of learning, he seems to have possessed a faculty of prevision, of seeing in advance of exact proof, the broad general outlines of the subjects with which he was dealing. This is certainly true of his work in the Maya field, and probably also of his work in the related field of Mexican linguistics.

Indeed, decipherment has now proceeded to the point where it may possibly be doubted whether history as such was ever recorded on the monuments. This question, of course, must necessarily remain open until the last hieroglyph shall have been deciphered, but certainly the experience of the past and present indications of the future tend to strengthen rather than dispel such doubts.

On the other hand, it seems incredible that any people could have erected so many monuments and inscribed them so laboriously without recording something of their history. Such a condition would be so unique in the annals of mankind that, if for no other reason than its isolation, it might well be doubted here. In fact, the writer still believes that some residuum of history will yet be found after all the calendric glyphs have been deciphered. If this should prove to be true, however, it is certain such historical data will be confined to very brief allusions to the most important events, perhaps by means of highly specialized signs standing for such general ideas as victory, defeat, conquest, war, pestilence, famine, birth, death, fruition of crops, trade, religious festivals, foundation of cities, and the accession of rulers, and more specifically for the names of particular towns, tribes, and individuals.

Such historical data as these are clearly found in the allied field of the Aztec hieroglyphic writing, particularly as it was used in the manuscripts or codices. In these texts, by means of specialized characters having just such general meanings as the above, much aboriginal history is accurately recorded. To begin with, the signs for a large number of Aztec personal and place names have been identified. For example, the name-glyphs of the nine Aztec *tlahouani*,¹ or rulers, from Acamapichtli, 1376-1395 A. D., down to Moctezuma II, 1502-1520 A. D., are known, as well as the name-glyphs of many towns and cities in central Mexico.² By means of these characters and the signs of general meaning just noted, and with the help of a fairly accurate chronological system, the Aztec were able to record the principal events of their history with considerable precision.³

In figure 1 is shown the death of the eighth *tlahouani*, Ahuitzotl, in the year 10 Tochtli (1502 A. D.) and the succession of his nephew, Moctezuma II, to the throne, as recorded in several different Aztec manuscripts.

Figure 1, *a*, shows this event as set forth in the Codex de Tepechpan.⁴ In the center of the circle at the top is seen the head of a rabbit, *tochtli*, with 10 small dots around it. This stands for the year 10 Tochtli,⁵ or 1502 of the Christian Era.

¹Literally, "he who speaks" or "the one who speaks" (Seler, 1904, pp. 146, 156). This was the Aztec name for ruler or king. The corresponding position among the Maya was called *halach uinic*, "real or true man" (Brinton, 1882, p. 128), both words implying within themselves supreme authority.

²The second part of the Codex Mendoza sets forth the tribute paid by different cities to the Aztec rulers, the signs for the different cities being followed by the amount of tribute paid by each. Peñafiel, in his *Nombres geográficos de México* has collected the signs for many of these place-names. See Peñafiel, 1885.

³The Aztec calendar did not permit of accuracy in dating beyond a period of 52 years, unless an unbroken series of the successive 52-year periods was preserved. In other words, any Aztec date could recur fulfilling all the necessary conditions imposed by their calendar, after a lapse of 52 years. However, if there are no lacunæ the record remains accurate indefinitely, indeed until an omission occurs.

⁴See Codex (Mapa) de Tepechpan, plate 3.

⁵The Aztec named their years after the days with which they began, always one of the following four: Acatl (reed), Tochtli (rabbit), Calli (house), and Tecpatl (flint).

Attached to this sign are two human figures. The one to the left is swathed in bands and tied with rope to indicate that it is dead, a mummy. In all the Aztec manuscripts this mummy-bundle is the universal sign for death. The fact that the dead man had been the *tlahouani* is shown by the *xiuhtzontli* or turquoise-studded crown that rests on the mummy's head.

The *xiuhtzontli* or Aztec crown resembled somewhat the red crown of Lower Egypt in Pharaonic times, reversed, being high in front and low in back, with a tassel falling behind. It was worn only by the *tlahouani* and is used in the manuscripts as a sign for royalty.



FIG. 1.—Death of the eighth *tlahouani* (ruler) Ahuizotl and succession of Moctezuma II in the year 10 Tochtli (i. e., 10 Rabbit, 1502 A. D.) as represented in: *a*, Codex de Tepechpan; *b*, Codex Aubin 1576; *d*, right half, Codex Telleriano-Remensis; *e*, right half, Codex Vaticanus 3738. Conquest of the town of Tecuantepec in the same year by Ahuizotl as represented in: *c*, Codex Mendoza; *d*, left half, Codex Telleriano-Remensis; *e*, left half, Codex Vaticanus 3738.

Finally, above and behind the mummy is a small animal attached to the *xiuhtzontli* by a line; from its feet hang water symbols. This is the sign for the personal-name, Ahuizotl (Nahuatl for water-animal), and indicates that this was the dead man's name.

The figure on the right in 1, *a*, is a man seated on a throne or dais. He also wears the *xiuhtzontli*, indicating that he, too, is a *tlahouani*. His name-glyph is attached to the back of the throne by a line and is seen to be the *xiuhtzontli* itself, by which sign Moctezuma II or Moctezuma Xocoytzin (the younger) is always represented in the Aztec manuscripts.

Although this record is very elliptical, it is perfectly clear from it that the *tlahouani* Ahuizotl died in the year 10 Tochtli and was succeeded by Moctezuma II.

This event, according to the Codex Aubin, 1576,¹ is shown in figure 1, *b*, a comparison of which with figure 1, *a*, will show that the two passages are practically identical. Both have the same year, 10 Tochtli; both show the dead man to have been the same person, Ahuitzotl, although in figure 1, *b*, his rank has been omitted, *i. e.*, the mummy-bundle lacks the xiuhtzontli; and both show the succession of Moctezuma II as tlahtouani.

This same event as recorded in the Codex Telleriano-Remensis,² and the Codex Vaticanus 3738³ is shown in the right halves of figures 1, *d*, and 1, *e*, respectively, the only essential difference between which and figures 1, *a*, and 1, *b*, is the omission in the former of the rank of the dead man and that of his successor.

Barring this minor detail, however, all four of these accounts, each from a different source, agree as to the essential facts concerned, namely, that the death of the tlahtouani Ahuitzotl and the accession of Moctezuma II took place in the year 10 Tochtli.

By means of these few signs, then, the mummy-bundle on the one hand, and the xiuhtzontli on the other, with the corresponding name-glyphs and year-signs, the Aztec were able to record the deaths and accessions of their rulers, an important part of all histories.

Another important glyph of general meaning is the shield and arrows which signified war or conquest. In the Codex Mendoza, which is a record of the cities and towns conquered by the different Aztec tlahtouani, this character is placed near the signs for certain towns which themselves are attached to burning houses, to signify specific conquests.

On pages 12 and 13 of this manuscript are recorded a number of cities and towns conquered by the tlahtouani Ahuitzotl just before his death in the year 10 Tochtli (1502 A. D.), among others, Tecuantepec. In figure 1, *c*, Ahuitzotl is shown seated on his throne, crowned with the xiuhtzontli, a speech-scroll issuing from his mouth. The speech-scroll, shown here as a curl issuing from the man's mouth, was also an emblem of royalty among the Aztec, only the tlahtouani himself being thus represented in the codices. Indeed, the word tlahtouani, as noted above, itself means "the one who speaks," and this idea is graphically brought out by the speech-scroll. He faces a shield and arrows, which signify conquest, and the sign for the town of Tecuantepec, attached to a burning house. The word Tecuantepec is rendered by the head of a man-eating animal—possibly the jaguar—*tecuan*i, surmounting a hill, *tepec*. The latter is also used in some manuscripts as a general sign denoting towns or cities, and here probably means "town of the man-eating animal." To the left is the sign for the year 10 Tochtli, in which the conquest was made. By these few characters, record is here made of all the essential facts of a specific conquest: the conqueror's name and rank, the name of the conquered city, and the date of the conquest.

¹See Codex Aubin, 1576, p. 77.

²See Codex Telleriano-Remensis, p. 41.

³See Codex Vaticanus 3738, p. 84.

This same event, as depicted in the Codex Telleriano-Remensis,¹ is given in figure 1, *d*. Here we see the year 10 Tochtli at the top and to the left a warrior with shield and arrows on his left arm, signifying conquest. A comparison of this shield with the one in figure 1, *c*, shows that the two are practically identical. Below is the sign for Tecuantepec. In this passage the idea of conquest is brought out by the warrior, shield, and arrows, the burning house having been omitted.

Finally, this same event, as represented in the Codex Vaticanus 3738,² is shown in figure 1, *e*. The warrior with a shield on his left arm, standing above a jaguar's head, which rests on top of a hill, is substantially the same as in figure 1, *d*. To the right is the year 10 Tochtli, and the whole passage records the conquest of Tecuantepec in that year by the Aztec.

In figure 2, from the Codex Telleriano-Remensis,³ is shown the first human sacrifice, which was celebrated at Tenochtitlan (the City of Mexico), in the year 5 Tecpatl (1484 A. D.) on the occasion of the dedication of the great *teocalli* (Nahuatl for house of the god) or Temple of Huitzilipochtli, the Aztec God of War.

The year 5 Tecpatl appears at the top. Below is the great *teocalli* surmounted by the sign for Tenochtitlan, a stone, *tetl*, from which grows the nopal, *nochtli*.

Human blood streams down the double stairway and stains the balustrades at the top. To the right is the officiating priest in the act of sacrifice. The victim, in a welter of blood (red in the original manuscript), lies stretched on his back with his eyes closed, as though the sacrifice had already been consummated.

In addition to such purely historical matters as the above, record of unusual natural phenomena was also carefully kept, as shown in the several examples in figure 3, all from the Codex Telleriano-Remensis.

The day-sign Ollin in Nahuatl means "movement," and this character was used in the Aztec manuscripts to express earthquakes. In figure 3, *a*, is shown an earthquake which occurred in the year 7 Tecpatl (1460 A. D.).⁴ Figure 3, *b*, and *c*, shows that earthquakes occurred in the years 2 Acatl (1507 A. D.)⁵ and 2 Calli (1533 A. D.)⁶ respectively.

In the former year an eclipse of the sun is also noted, shown graphically in figure 3, *b*, by the missing sector in the sun-sign. In figure 3, *c*, there is also recorded a volcanic eruption, possibly of Popocatepetl (Nahuatl for smoking

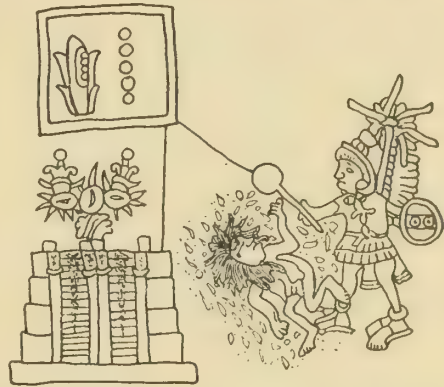


FIG. 2.—Dedication of the great *teocalli* (temple) of Huitzilipochtli, the Aztec God of War in the year 5 Tecpatl (i. e., 5 Flint, 1484 A. D.) at Tenochtitlan (now the City of Mexico) upon which occasion human sacrifice is said to have been practiced for the first time, as represented in the Codex Telleriano-Remensis.

¹See Codex Telleriano-Remensis, p. 41.

²See Codex Vaticanus 3738, p. 84.

³See Codex Telleriano-Remensis, p. 39.

⁴See Codex Telleriano-Remensis, p. 33.

See Codex Telleriano-Remensis, p. 42.

See Codex Telleriano-Remensis, p. 45.

hill), in the year 2 Calli. The smoke-curls will be noted rising above the star, which is attached to the year-sign by a line. Another solar eclipse is declared in figure 3, *f*, to have taken place in the year 5 Tochtli (1510 A. D.).¹ Again, as in the case of figure 3, *b*, there is a sector missing from the sun-disk.

In figure 3, *d*, is shown a comet (Nahuatl *citlalpopoca*, smoking-star), happily conceived as a serpent, which swept over the Valley of Mexico in the year 10 Calli (1489 A. D.).² It was this comet or another, which 30 years later Moctezuma II regarded as having presaged the coming to Anahuac of the Spaniards, whom he believed to be sons of the Aztec god Quetzalcoatl.

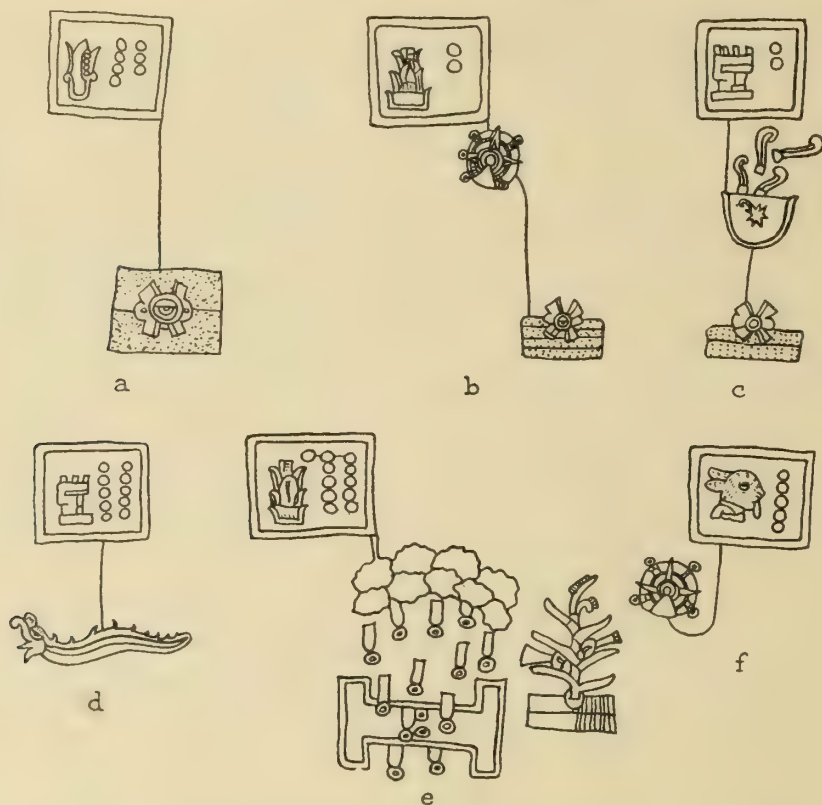


FIG. 3.—Natural phenomena recorded in the Codex Telleriano-Remensis: *a*, an earthquake in the year 7 Tecpatl (*i. e.*, 7 Flint, 1460 A. D.); *b*, an earthquake and an eclipse of the sun in the year 2 Acatl (*i. e.*, 2 Reed, 1507 A. D.); *c*, an earthquake and a volcanic eruption in the year 2 Calli (*i. e.*, 2 House, 1533 A. D.); *d*, a comet in the year 10 Calli (*i. e.*, 10 House, 1489 A. D.); *e*, a great fall of snow at the town of Tlachquiahco in the Province of Mixtecapan in the year 11 Acatl (*i. e.*, 11 Reed, 1503 A. D.); *f*, an eclipse of the sun in the year 5 Tochtli (*i. e.*, 5 Rabbit, 1510 A. D.).

A great fall of snow at Tlachquiahco in the Province of Mixtecapan in the year 11 Acatl (1503 A. D.)³ is shown in figure 3, *e*. Note the snow falling from the bank of clouds. The sign for Tlachquiahco is the H-shaped object below the bank of clouds, the *tlachtli*, or Aztec ball-court, shown covered with water symbols, the rain, *quiahuatl*, with the place terminative *co*—Tlach-quiah-co. The plant to the right is possibly the sign for Mixtecapan.

¹See Codex Telleriano-Remensis, p. 43.

²*Ibid.*, p. 40.

³*Ibid.*, p. 41.

Still another important event, recorded in practically all the Aztec historical codices, was the renewal of the sacred fire at the end of each *xihuitlmolpia* (Nahuatl for "our years are tied up again") or 52-year period.

This religious festival always occurred at the beginning of the year 2 Acatl, and its observance is recorded in the manuscripts in one of two ways: either by the fire-stick with which the sacred fire was rekindled, or by a knot below the year-sign, signifying thereby that the years had been tied up, hence the name *xihuitlmolpia* by which the period was known.

Examples of the first are shown in figure 4, *a*, *b*, *c*, and *d*, where the renewal of the sacred fire in the year 2 Acatl (1507 A. D.) is recorded according to the Codices Telleriano-Remensis,¹ Vaticanus 3738², Mendoza³, and Boturini⁴ respectively. Here the fire-stick appears with a row of charred holes in it, with the fire-drill in position; smoke-curls rising from the orifice.

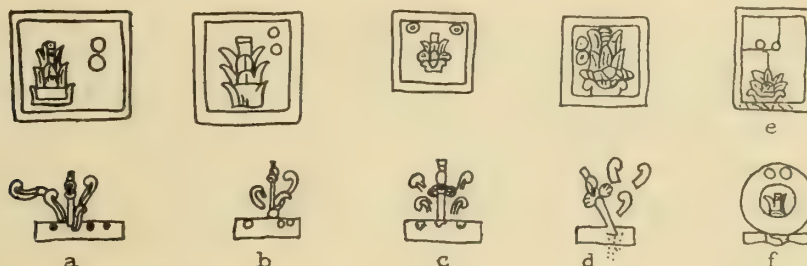


FIG. 4.—Feast of *xihuitlmolpia* or the completion of the 52-year cycle, always celebrated at the beginning of the year 2 Acatl (*i. e.*, 2 Reed, 1507 or 1455 or 1403 or 1351 A. D., etc.) as represented in: *a*, the Codex Telleriano-Remensis; *b*, the Codex Vaticanus 3738; *c*, the Codex Mendoza; *d*, the Codex Boturini; *e*, the Codex Aubin 1576; *f*, the Codex de Tepechpan.

This method of kindling the sacred fire, the friction of two sticks rubbed against one another, had a wide distribution in ancient America, and fire-sticks with rows of charred holes, almost identical with those shown in figure 1, *a-d*, have been recovered as far north as the Pueblo area in the southwestern United States.⁵

The second character for the *xihuitlmolpia*, a knot below the year-sign, is shown in figure 4, *e*, and *f*, from the Codex Aubin, 1576,⁶ and the Codex de Tepechpan⁷ respectively. It is a simple knot and indicates that the previous 52-year cycle had been tied up, *i. e.*, completed, and the next succeeding one had begun with the year 2 Acatl.

The foregoing examples will suffice to indicate the general tenor of the Aztec historical records, the general meaning of which is no longer concealed from us. Indeed, it is now possible to decipher as high as 90 per cent of all Aztec glyphs, and it is evident from the examples given that at least some of their manuscripts are true histories.

¹See Codex Telleriano-Remensis, p. 33.

²See Codex Vaticanus 3738, p. 85.

³See Codex Mendoza, p. 14.

⁴See Codex Boturini, p. 20.

⁵The writer has found such fire-sticks in the Pueblo ruins of the Jemez Plateau, New Mexico, at Puyé and Tyuonyi for example; and Kidder and Guernsey report them from the cliff-dwelling region of northeastern Arizona (1919, pp. 120 and 121, and plate 50, *a* and *c-e*); indeed, their use seems to have been general throughout the whole Pueblo area.

⁶See Codex Aubin, 1576, p. 78.

⁷See Codex (Mapa) de Tepechpan, plate 3.

The fact also that a native Mexican scribe, writing shortly after the Spanish Conquest (1558), was able to amplify and expand some pre-Columbian record into such an accurate historical account as the Annals of Quauh-titlan proves conclusively that historical synopses were carefully kept and the principal events of Aztec history noted therein. In the manuscript mentioned, the history of the Chichimec, a Nahua tribe inhabiting the Valley of Mexico in pre-Columbian times, is traced from 635 A. D. down to 1558 A. D. in practically an unbroken sequence of nearly a thousand years.

These records, to be sure, contain little more than a succession of highly abbreviated allusions to the principal events, but their historical character can hardly be challenged on that account, and they may be accepted without reservation as reliable sources for the reconstruction of ancient American history.

Unfortunately such is not found to be the case when we turn to the three Maya manuscripts that have come down to us, although the Spanish chroniclers of the sixteenth and seventeenth centuries explicitly state that the Maya also recorded their history in their books.

The writer has reviewed this evidence elsewhere,¹ but the more important passages bearing on this point are repeated below. Many, in fact most, of the early Spanish chroniclers make the direct statement that the Maya recorded their history in their manuscripts or books. Bishop Landa, always one of our most reliable authorities, writing as early as 1566, says in this connection: "And the sciences which they [the priests] taught were the count of the years, months, and days, the feasts and ceremonies, the administration of their sacraments, days and fatal times, their methods of divination and prophecy, and foretelling events, and the remedies for the sick, and their antiquities."² And again, "They [the priests] attended the service of the temples and to the teaching of their sciences and how to write them in their books."³ And again, "This people also used certain characters or letters with which they wrote in their books their ancient matters and sciences."⁴

Father Ponce, who made a tour through New Spain in 1588, writes: "The natives of Yucatan are, among all the inhabitants of New Spain, especially deserving of praise for three things. First, that before the Spaniards came they made use of characters and letters with which they wrote out their histories, their ceremonies, the order of sacrifices to their idols and their calendars in books made of the bark of a certain tree."⁵

Doctor Aguilar, writing at the close of the same century, 1596, says: "On these [the fiber-books] they painted in color the reckoning of their years, wars, pestilences, hurricanes, inundations, famines, and other events."⁶

Father Lizana, writing in 1601, is scarcely less explicit: "The history and authorities we can cite are certain ancient characters, scarcely understood by many and explained by some old Indians, sons of the priests of their gods, who alone knew how to read and expound them and who were believed in and revered as much as the gods themselves."⁷

¹Morley, 1915, pp. 33-36.

²Landa, 1881, p. 74.

³Landa, *op. cit.*, same page.

⁴Landa, 1881, p. 103.

⁵Ponce, 1872, p. 392.

⁶Aguilar, 1639, p. 87.


⁷Lizana, 1893, p. 3.

Bishop Cogolludo, nearly a century later (1688), adds the following evidence: "In a city named Tixhualatun, which signifies 'place where one graven stone is placed upon another,' they say are their archives, where everybody had recourse for events of all kinds, as we do to Simancas."¹

Finally, as late as 1697, Villagutierre found historical records still being kept in the hieroglyphic writing by an independent Maya tribe, the Itza, of Peten: "Because their king (Canek) had read it in his *analtehes* [fiber-books or codices] they had knowledge of the provinces of Yucatan, and of the fact that their ancestors had formerly come from them; *analtehes* or histories being one and the same thing."²

Indeed, so far as the manuscripts are concerned, there can be little doubt, in the face of such direct evidence as the foregoing, that the Maya also recorded their history.

When we come to examine the Maya codices extant, however, these statements are not substantiated. The Dresden Codex, for example, deals with the tonalamatl, and astronomical phenomena and calculations. The Codex Tro-Cortesianus is almost entirely given over to the record of tonalamatls, and the Codex Peresianus partially so. There is a possibility, however, that the last may have some small content of history, as a succession of katuns like the *u kahlay katunob* in the Books of Chilan Balam clearly appears on one side of the manuscript.³

II	[Katun]	2 Ahau	
XIII	[Katun]	13 Ahau	
XI	[Katun]	11 Ahau	
IX	[Katun]	9 Ahau	
VII	[Katun]	7 Ahau	
V	[Katun]	5 Ahau	
III	[Katun]	3 Ahau	
I	[Katun]	1 Ahau	
XII	[Katun]	12 Ahau	
X	[Katun]	10 Ahau	
VIII	[Katun]	8 Ahau	There was fighting in the fortress of Mayapan because of the seizure of the fortress and the fortified town by the joint government in the city of Mayapan.
VI	[Katun]	6 Ahau	
IV	[Katun]	4 Ahau	The pestilence took place; the general death took place in the fortress.
[II] ⁴	[Katun]	2 Ahau	The small-pox broke out.
XIII	[Katun]	13 Ahau	Ahpulha died the sixth year. The count of the years was toward the East, [the month] Pop began on [the day] 4 Kan to the East . . . 9 Imix was the day on which Ahpulha Napot Xiu died in the year of the Lord 158.
			
XI	[Katun]	11 Ahau	The mighty men came from the East. They brought the sickness. They arrived for the first time in this country we Maya men say in the year 1513. ⁵

¹Cogolludo, 1688, p. 186.

²Villagutierre, 1701, p. 353.

³Morley, 1915, pp. 33, 84, 79-86 and Appendix VII, p. 576.

⁴Matter inclosed in brackets, thus [], does not appear in the original. Here the "2 Ahau" preserves the continuity of the sequence, however.

⁵This extract appears on the back of folio 41 of the Book of Chilan Balam of Chumayel. For a facsimile reproduction see Gordon, 1913, plate 76, and for a translation with notes, Brinton, 1882, pp. 155, 156, 161, and 162.

These *u kahlay katunob* "or records of the katuns," were written approximately in 1575 to 1800 A. D. by native Maya in the Maya language but in the characters of the Spanish script, and at least one of them, the first chronicle of the Book of Chilán Balam of Chumayel,¹ gives an unbroken succession of the katuns, or 7,200-day periods, for more than 1,100 years, carrying back the chronological outline of Maya history to about 450 A. D. The successive katuns appear in a column at the left of each page, with the corresponding events, if any, written after each, only the more important events being recorded, as shown at the bottom of the preceding page.

The close resemblance of this extract from the first *u kahlay katunob* in the Book of Chilán Balam of Chumayel to the Aztec historical codices, such as the Codex Mendoza, the Codex Telleriano-Remensis, and the Codex Aubin, 1576, for example, with their sequences of years, is so apparent as to require no further comment here, and it may be accepted as indicating that the *u kahlay katunob* in the Books of Chilán Balam were copied by natives in the Spanish script from older pre-Columbian historical manuscripts, which gave the outline and principal events of Maya history—in short, that Maya historical manuscripts formerly existed in spite of the fact that none of them have yet been discovered. Moreover, it should be borne in mind in this connection that many Maya manuscripts are known to have been destroyed by the Spanish priests in their efforts to stamp out the native religion, and the fact that only those of a non-historical character have been preserved is doubtless due to accident rather than to any failure on the part of the Maya to have recorded their history.²

Turning next to the Maya inscriptions, it must be admitted that their possible historical content is still an open question, although both Lehmann and Spinden (as well as the writer) are of the opinion that the as yet undeciphered glyphs will prove to contain some historical data. Indeed, occasionally the subjects portrayed on the monuments are themselves such as to lend color to the idea. Many of the stelæ show bound captives with glyphs inscribed on their shoulders and thighs, or somewhere near them, and in such cases the conclusion is almost inevitable that these signs stand for the personal or place names of conquered rulers, tribes, or cities, as in the related Aztec codices. Lehmann says in this connection:

"I feel no doubts that a number of the Maya reliefs and inscriptions are intended to commemorate historical events, particularly the scenes wherein a number of men in humble attitude, often loaded with chains, approach the Maya ruler. Each of these figures is apparently the chieftain of a conquered tribe, the name and origin of which are carefully denoted by a number of hieroglyphics."³

¹See Brinton, 1882, pp. 152-157; and Gordon, 1913, plates 74-77, for a facsimile reproduction of this chronicle.

²Bishop Landa himself, to whom we otherwise owe so much, naïvely confesses to having burned a number of these manuscripts: "We found among them a great number of books in their letters, and because they had nothing but superstitions and lies of the devil, we burned them all, which they felt marvellously and gave them pain." (1881, p. 103.) In this conflagration, according to a letter written by the Yucatecan Jesuit, Domingo Rodríguez, to a Señor Estévez from Bologna on March 20, 1805, the following material was destroyed: 5,000 idols of different forms and dimensions; 13 large stones which served as altars; 22 small stones of various forms; 27 rolls of signs and hieroglyphics on deerskin; and 197 vases of all dimensions and shapes. See Molina Solís, 1897, p. 195.

³Lehmann, 1909, pp. 16, 17.

Spinden has elaborated this hypothesis in a recent paper, arguing for the historical character of some of the reliefs:

"Judging by the graven pictures many monuments of the southern Maya are memorials of conquest. Captives bound with rope or held by the hair are actually represented in several instances. On a still greater number of monuments the principal personage stands upon a crouched or prostrate man devoid of all signs of rank and power. . . . Now it is obvious that the presence of vassals and overlords on the monuments increases the probability that actual historical events are being commemorated and that actual historical persons are being portrayed. . . . All the human figures in this tableau [Piedras Negras, Stela 12], including three victors and nine victims, have short incised inscriptions upon their bodies or near their heads. These inscriptions consist of two or more glyphs, and it seems reasonable to suppose that names of both persons and places are recorded."¹

This evidence in itself is very convincing, but when it is coupled with the fact that historical data are known to be recorded in the related Aztec manuscripts, and stated by the early Spanish writers to have been recorded in the Maya manuscripts as well, and actually found in the Books of Chilán Balam, there can be little doubt that some historical data will yet be found in the Maya inscriptions, even though the most recent discoveries are not in this direction.

Whether or not the Maya inscriptions contain such an historical residuum, however, is of little moment in the present connection, since, from what has already been said, there can be no doubt as to the fundamental part played by chronology in their records.

The decipherment of the dates on the monuments at Copán, therefore, is the object of the present investigation. Upon the dates of the monuments hinges the solution of other important and related problems: the development of Maya art, the determination of Maya astronomical learning, the possible discovery of historical material, and, in fact, the very function of the monuments themselves. Indeed, it is safe to say in this connection that little or no progress can be made in understanding the true nature of the Maya monuments and their inscriptions until their dates shall have been deciphered.

¹Spinden, 1916a, pp. 442, 443. Stela 12, at Piedras Negras, mentioned above, is one of the best examples of these possible "historical monuments." See Maler, 1901, plate 21. The subject portrayed is a ruler seated upon a throne with an attendant standing on either side. Seated cross-legged below the throne, and between the two attendants, are nine captives bound with ropes, their ear-plugs removed, no head-dresses or clothing, and an unmistakable expression of distress on their faces. The scene would appear to be that of a conqueror and his captives. It is interesting to note that of these twelve figures the ruler, his two attendants, and five of the captives have the same glyph either inscribed on them or near them, namely, the familiar bat head or Zotz-sign with a knot prefix. In other words, two-thirds have the same character attached to them. Lehmann (1909, p. 17, note 1) suggests this may have something to do with the Maya bat tribe, the Tzotzil (Maya *tzotz*, bat). Spinden (*ibid.*) believes this glyph may have the general meaning "here follows a name."

The writer thinks it more likely that this bat glyph is a general sign for "conquest" or "conquered." The other glyph or glyphs would then indicate the name of the figure in each case, the picture itself showing the relation of the figure to the central idea, *i. e.*, whether as conquering or being conquered.

Lintel 2 at Piedras Negras has a similar subject. See Maler, 1901, plate 31. Here an elaborately dressed ruler, with spear in hand, faces six kneeling figures, though these are not bound. Behind the ruler stands a single attendant. Again, four of the six captives (?) have the Zotz glyph standing above them. Although it is too early to attempt to speak finally as to the meaning of this glyph, the accompanying pictures are such as to indicate that it may well have had the general meaning suggested by the writer above.

The strong probability, as Spinden notes above, that portraiture occurs on the monuments, also tends to confirm their historical character, for the reason that if the figures portrayed are particular individuals, the accompanying inscriptions would presumably record their activities.

It is highly probable, moreover, that the exact dating of the monuments will throw light on the meanings of the as yet undeciphered glyphs. This is certainly true of the Supplementary Series, a group of 7 or 8 signs normally standing between the two parts of the Initial Series terminal date, which, as the writer has shown elsewhere,¹ depend for the very fact of their existence upon the corresponding Initial Series. Indeed, so far as the Supplementary Series are concerned, it is necessary to know the date recorded by the accompanying Initial Series before interpretation can even be attempted.

Again, in the case of the Secondary Series,² if we are to determine the nature of the phenomena governing this important count, which ranges from one day to more than one million years—that is, whether it records astronomical, mythological, traditional, or historical data, it will first be necessary to know the dates on which the governing phenomena occurred.

The record of these three counts, the Initial, Supplementary, and Secondary Series, the first and third solar, the second lunar, comprises approximately one-half of the Maya inscriptions, and enough has already been said concerning them to show their intimate connection with, and dependence upon, the counting of time. To the ultimate solution of these and other related problems, therefore, not only in this archæological area, but also in the much broader field of contemporary ancient America, an accurate knowledge of Maya chronology is indispensable; and in the present volume this particular phase of the inscriptions at one of the largest Maya cities has been exhaustively reviewed.

METHOD OF TREATMENT.

The immediate object of this research has determined to a large extent the method of treatment followed in describing the different monuments. The Old Maya Empire, approximately the period covered by the Copan inscriptions (between three and four centuries), has been divided into three smaller periods: the Early, the Middle, and the Great;³ and under these headings the individual monuments have been described according to their relative chronological positions in each subdivision, the inscriptions of the Early Period being found in Chapter II, those of the Middle Period in Chapter III, and those of the Great Period in Chapter IV.

The general discussion of each monument is preceded by a synoptic outline giving its most essential features: name, provenance, date, reproductions of the text, and references. By this standardized treatment, which is followed throughout the book, the same important points about every monument are given in a synopsis at the head of each, so that it is not necessary to read all the accompanying description in order to arrive at the most essential

¹Morley, 1916. The general nature of this count, dealing with the moon, is described briefly in Appendix VI.

²Secondary Series is the name which has been applied to glyphs recording dates other than Initial Series dates. They consist of a number and date and are usually counted from the Initial Series or from some date which may be referred back to the Initial Series. For an explanation of this count, see Morley, 1915, pp. 74-76.

³For the further discussion of this question see pp. 53, 54.

points. It is thought this method of treatment will make the information available here more accessible, and will, at the same time, facilitate use of this book as a chronological concordance of the Copan inscriptions.

An example of one of these synoptic headings follows:

STELA A.

- Provenance: In the Great Plaza just north of Mound 4, Main Structure.
(See plate 6.)
- Date: 9.15.0.0.0 4 Ahau 13 Yax.
- Text, (a) photograph: Maudslay, 1889-1902, vol. 1, plates 25, 27-29.
Spinden, 1913, plate 20, 7 (part only).
(b) drawing: Maudslay, *ibid.*, plates 26, 30.
Morley, 1915, plate 7, b.
Stephens, 1841, vol. 1, 3 plates after p. 158.
- References: Bowditch, 1910, pp. 101, 126, 127, 182, 183, and tables 29 and 31.
Galindo, 1834, Appendix XI, p. 598.
Goodman, 1897, p. 129.
Gordon, 1896, p. 35.
Gordon, 1902, p. 171.
Maudslay, 1889-1902, vol. 1 of text, pp. 36-39.
Morley, 1915, pp. 169, 170.
Seler, 1902-1908, vol. 1, pp. 754, 755.
Spinden, 1913, pp. 158, 159, 162, and table 1.
Stephens, 1841, vol. 1, p. 158.
Thomas, 1900, pp. 776, 801.

Under the first heading are given the location of the monument and the corresponding map in this volume where this is shown.

Under the second heading is given the date of the monument expressed in terms of the Maya chronological system. The method followed here in transcribing Maya dates into the terms of our own Arabic notation is that first used by Bowditch.¹

The largest time-period usually present in a Maya date, the cycle, is written first, *i. e.*, to the left; next come the katuns; next the tuns; next the uinals; and last the kins, each being separated from the next by a dot, thus, 9.15.0.0.0, the whole number being read: 9 cycles, 15 katuns, 0 tuns, 0 uinals, and 0 kins. Immediately following this is the terminal date (4 Ahau 13 Yax in the present example), reached by counting this period forward from the starting-point of Maya chronology. The whole record 9.15.0.0.0 4 Ahau 13 Yax, therefore, means that, if 9.15.0.0.0 be counted forward from the starting-point of Maya chronology, the day reached will be 4 Ahau, the 14th day of the month Yax, written as 13 Yax in the Maya notation.²

Maya dates are therefore simply records of periods of elapsed time. It is doubtful, indeed, whether the current day, as such, ever was recorded. In the present example the 9 cycles, 15 katuns, 0 tuns, 0 uinals, and 0 kins refer to past time, and the closing day of this period, 4 Ahau 13 Yax, was probably already past when it was counted. We have an identical practice in describing the time of day, that is, in counting hours, minutes, and seconds. When we say it is 2 o'clock in the afternoon, in reality the second hour after noon has passed, and the third hour is about to commence. In other

¹Bowditch, 1901, p. 1; also Bowditch, 1910, p. 38, note 1.

²Morley, 1915, pp. 46-48.

words, when we count the time of day we refer to elapsed, not current, time. This same method is used in reckoning astronomical time. During the passage of the first hour after midnight the hours are said to be zero, the time being counted by the number of minutes and seconds elapsed. Thus half past 12 is written $0^{\text{hr.}} 30^{\text{mins.}} 0^{\text{sec.}}$. Indeed, in this method 1 hour can not be written until the first hour after midnight is completed or until it is 1 o'clock, namely, $1^{\text{hr.}} 0^{\text{min.}} 0^{\text{sec.}}$ ¹

And so it was with the Maya. The time periods recorded refer to elapsed, not current, time, and since the Maya did not subdivide the day (at least periods smaller than the day have not yet been found in the records which have come down to us), the day is the basic unit of their count.

In speaking of a date as "in Cycle 9" in this memoir, what is really meant is that such a date is in the *tenth* cycle. However, in order to preserve the association of the Maya numerals actually recorded, it will be understood that dates thus described occurred in the period following the numeral actually recorded; as Katun 15 for a date in the sixteenth katun or Katun 18 for a date in the nineteenth katun.

The basic unit of the Maya Calendar then was the day, and Maya dates were recorded by stating how many days, expressed as so many cycles of 144,000 days each, so many katuns of 7,200 days each, so many tuns of 360 days each, so many uinals of 20 days each, and so many kins (odd number of days under 20) had elapsed since the starting-point of their chronology to reach the date recorded.

This method of dating is identical with the use of the Julian day by modern astronomers and chronologists, the corresponding Julian day of any date giving the total number of days which have elapsed from the starting-point of the Julian Period, 4713 B. C., to the given date. In recording dates in our own Christian chronology we follow a similar, though not an identical, practice.

In writing 1916 A. D., Sunday, January 1, for example, we understand that 1 period of a thousand years, 9 periods of a hundred years, 1 period of ten years, and 6 periods of one year have elapsed since the birth of Christ—the starting-point of our chronology—to reach the current day, which is Sunday, the first day of the month of January.

In this latter case, however, the basic unit of the count is the year, not the day, as in the Julian and Mayan Periods. Indeed, in our own method of writing dates there is no direct record of the fractional parts of a year, *i. e.*, the number of days in the new year to reach the date recorded; and this information has to be calculated from the month date given. For this reason, as often claimed, the Maya kept a more convenient record of the total number of elapsed days since the beginning of their chronology than we can by our system, complicated as the latter is by the bissextile element.

The Bowditch method of transcribing Maya dates is the only one now in use, having entirely replaced the clumsy system devised by Goodman or

¹Morley, 1915, pp. 46-48.



D F C G₂G₁ B H I F

a. The Great Plaza looking east from the northwest corner.



3 2 E L 4 B C D H F

b. The Great Plaza looking northwest from the summit of Mound 26.

the still clumsier expedient of Förstemann and Seler of reducing the dates to their corresponding day totals in our own Arabic notation.

In comparing Maya dates throughout this work the terminal dates have been omitted; for example, 9. 15. 0. 0. 0 is used for 9. 15. 0. 0. 0 4 Ahau 13 Yax, and 9. 16. 0. 0. 0 for 9. 16. 0. 0. 0 2 Ahau 13 Tzec. This omission, however, in no way affects the values of the dates thus abbreviated, and has been introduced only to simplify and expedite the comparisons. When monuments of the same date are known at other sites the fact is noted and reference made to Appendix VIII, where their location will be found.

It has appeared advisable not to give the corresponding equivalents in Christian chronology in the general text, first because of the widely different results reached in the several systems of correlation which have been proposed, and second because eventually it is hoped that it will be possible to correlate the two chronologies to a day by means of astronomical data present in the inscriptions. The writer believes, however, that it is now possible to fix Maya dates to their corresponding positions in the Christian Era with a maximum error of less than 5 years and probably of less than 1 year. However, because of even this slight uncertainty, it has seemed best to reserve the presentation of the entire correlation question, as well as the table of equivalents suggested by the writer, for treatment in an appendix. (See Appendix II.)

Under the third heading in each synopsis will be found plate and figure references to specific publications where the monument under discussion has been reproduced; also whether the reproduction is from a photograph or drawing, or from both.

Under the fourth and last heading are given page references to the several authorities who have described the monument. Then follows the general discussion of the text.

The latter in each case opens with the size of the monument and a brief description of its principal characteristics—how the inscription is presented, whether upon one or more sides. Then comes the detailed consideration of the text, the decipherment of its several dates, and finally a summary of the dates.

At the end of each chapter, the chronological data have been briefly analyzed, particularly with reference to the growth and expansion of the tribe or people whose capital was Copan, during the corresponding period.

In designating individual glyph-blocks in a text, the method followed is that devised by Bowditch, namely, a set of two coördinates, the vertical rows or columns being given letters from left to right, thus: A, B, C, D, etc., and the horizontal rows, numbers from top to bottom, thus: 1, 2, 3, 4, etc. By means of these two sets of coördinates, any glyph-block can be simply and clearly designated.

For example, in figure 5, glyph α would be described as A1, glyph β as B3, and glyph γ as B6. This simple method of glyph designation will

be found to apply in the great majority of cases, but in a few texts where the arrangement is irregular, other methods have to be used.

The word hieroglyphic has been abbreviated to glyph throughout the present work in referring to signs expressing single ideas, such as the cycle-sign and its coefficient, the katun-sign and its coefficient, a day-sign and its coefficient, for example. The term glyph-block, as used hereinafter, refers to what Maudslay calls a glyph—that is, a rectangular block or character composed of one or more basic elements. Thus, in many glyph-blocks there are two ideas expressed, one recorded in the left half of the block, designated here as A1a or B1a, and the other in the right half of the block designated here as A1b or B1b. In some cases there are even four glyphs in a single glyph-block; in such cases the four glyphs are designated as A1a u. h. (upper half), A1b u. h. (upper half), A1a l. h. (lower half), and A1b l. h. (lower half), respectively. When the presentation is so irregular as to lie without the operation of these simple rules, Maudslay's numerical designations have been followed.

The Maya monuments have been usually classified into two groups according to their shape and size: stelæ and altars. As used in Maya archæology, the word stela (plural, stelæ) refers to a monolith, of columnar, shaft, or slab-like shape, usually over 2 meters in height. As a rule, these are inscribed with glyphs and human or grotesque figures, though either or both may be wanting. When both are wanting—*i. e.*, when a stela is devoid of sculptural decoration—we may probably assume that it was originally painted instead of carved.

As used in classical archæology, the word stele or stela usually has a more restricted application. A stele specifically refers to painted or carved slabs or pillars erected over Greek graves, or to milestones near towns, and more generally to inscribed stones in public places, the last more closely paralleling its use in Maya archæology.

Although Maya stelæ vary greatly in size and shape, the highest being over 10 meters and the lowest less than 1 meter in height, it is necessary to group them all together as opposed to the other general class of Maya monuments, the so-called "altars." The latter are much smaller and less uniform in shape than the stelæ, and, indeed, appear to have had some function subordinate to the latter, perhaps as true altars—*i. e.*, "places for offering sacrifice."

A fundamental difference in function also probably existed between the two groups at first. As the writer has shown elsewhere,¹ the stelæ are probably time-markers, erected perhaps primarily to mark the passage of

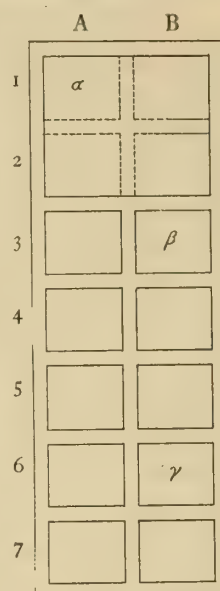


FIG. 5.—Method of designating individual glyph-blocks.

¹See Appendix VII and Morley, 1917b, pp. 195-201.

time. Throughout the greater part of the Old Empire they were set up at intervals of 1,800 days, in the different cities, and may perhaps be likened to 5-year almanacs, setting forth the principal astronomical or historical events of the preceding 5-year period.

The altars, on the other hand, rarely appear to have been thus used, except toward the end of the Great Period. They are usually associated with stelæ, standing in front of them, although occasionally independent altars are found. As suggested above, it is possible that they are altars in the truest sense of the word—places where sacrifices were offered in front of and to the stelæ.

Inscriptions are also found on architectural members, such as stairways, steps, door-jambs, lintels, cornices, wall-panels (both exterior and interior), and columns, the two types of monuments described, however, being sufficiently elastic to include all the detached inscribed stones.

In selecting the illustrations for this work, the principal object the writer has kept in view has been to use chiefly unpublished material; that is, to figure such texts as are accessible nowhere else. With the illustrations given in this work, and those already published by Maudslay and by the Peabody Museum, reproductions of practically all the Copan inscriptions are now accessible—certainly all the chronological portions—with but one notable exception, namely, the Hieroglyphic Stairway of Mound 26. This lengthy text, the longest known in the *Corpus Inscriptionum Mayarum*, is unfortunately in too fragmentary a condition to permit anything approaching its complete reassemblage. An analysis of the chronological parts, however, has been attempted in Chapter IV, pages 237-274.

The urgency of placing on record reproductions of all the Copan inscriptions is pressing. Several of the monuments have been destroyed in the past decade, indeed within the past 4 years,¹ and further irreparable losses may occur at any time. With the publication of the present volume, however, a part at least of every text now known at Copan will be accessible to the student, and in most cases reproductions of all the chronological glyphs will have been published.

In many cases photographs only are figured; in more, the reproductions are from drawings of the originals; and in a few, both drawings and photographs of the same text are given.

Some of the photographs used have been loaned by the Peabody Museum, for which the writer wishes to express his thanks. The remaining photographs, except that of the painting of Copan by Vierra (plate 33), were taken by the Carnegie Institution Central American Expeditions of 1915 and 1916. The Vierra painting is reproduced through the courtesy of the Museum of San Diego, San Diego, California, where the original is on exhibition.

¹In 1912 Stelæ 8 and 9 were broken up for use in the foundations of a wall then being built around the village cemetery, and in 1916 Altars L' and M' were smashed into small pieces for use in the foundations of the new village church.

All drawings of inscriptions in this memoir were made by the writer, in the great majority of cases directly from the originals, but two or three being drawn from casts or photographs in the Peabody Museum.

How far the writer has succeeded in eliminating his personal equation in these drawings is difficult to say, although every glyph was measured and drawn to scale, *i. e.*, not sketched free-hand. This point has already received some attention in connection with the work of Miss Hunter and Mrs. Tretheway, the delineators of the Maudslay and Bowditch publications, respectively, and a closing word may be added here.

In such complex compositions as the Maya glyphs, the element of selection, the quality of line employed, the method of rendering the depth of the relief, in some cases as much as 15 cm., and of showing the effaced portions, to say nothing of the debatable ground of restoring partially effaced glyphs, all make for considerable individual variation, even in copies of the same original. Moreover, the texts themselves differ greatly one from another, due in part to the different periods from which they date, and in part to the varying skill of the sculptors by whom they were severally executed. In view of all these complicating factors, therefore, it is not surprising to find slight dissimilarities in different representations of the same glyph. Such differences, however, are usually unimportant. They do not interfere with the accurate representation of the details upon which the glyphs depend for their meanings; and they are of moment only when it becomes necessary to rely upon the stylistic criteria for dating. In such cases, however, it is imperative to have the spirit of the original preserved so far as possible (character of line, detail of decoration, and depth of relief), for it is only by means of such secondary criteria that even approximate dating can then be attempted.

In closing this chapter it should be pointed out that all direct quotations from French, German, Spanish, and Mayan authorities, which are especially numerous in the appendices, have been translated into English in order to make them more serviceable to the general reader. In all such cases, however, footnotes indicate where the original passages may be consulted.

CHAPTER II.

THE INSCRIPTIONS OF THE EARLY PERIOD.

Any attempt to divide a series of monuments, arranged according to their relative positions in a stylistic sequence, into chronological periods must necessarily be more or less arbitrary. The more homogeneous and consistent the stylistic development, the more arbitrary (and in a sense the more unsatisfactory) are the resulting chronological subdivisions. This is particularly true of such an art sequence as that at Copan, where sculpture in stone was gradually and consistently developed for more than three centuries. Spinden in his earlier classification of the Copan sculptures¹ regarded everything after 9.0.0.0 and prior to 9.15.0.0 as belonging to the Early Period, and after 9.15.0.0 as belonging to the Great Period, eliminating altogether a middle or intermediate period. But such a classification, while sufficiently accurate for purposes of preliminary investigation, was found to break down upon closer study, especially at other sites. It necessitated placing within the limits of a single period sculptures of very considerable stylistic dissimilarity—sculptures, indeed, as technically and esthetically different as the Apollo of Tenea (circa 550 B. C.) and the Charioteer of Delphi (circa 470 B. C.). Indeed, for purposes of close chronological description it was found necessary to recognize a Middle or intermediate period between the Early and Great Periods, the limits of which are fixed at one end by the first appearance of sustained improvement in technical processes, treatment, carving, depth of relief, and the like, and at the other end by the final disappearance of archaism.

Spinden, in another passage of the same work, virtually reached a similar conclusion himself:

"The chronology of Copan may be summed up as follows: The earliest monuments are very crude and archaic, particularly in regard to the carving of the human face. A steady improvement is noted, extending from the ninth [Katun 9] to the fifteenth katun [Katun 15]. By the beginning of the fifteenth katun almost the last trace of archaic treatment had vanished. The brilliant period lasted until the middle of the sixteenth katun [Katun 16] and possibly somewhat longer."²

The only real difference between this classification and that suggested by the writer is that in the former the Early Period is made to end in 9.9.0.0, while in the latter it is extended to 9.10.0.0, another 20 years.

On this latter date the first half of Cycle 9 came to an end, which, being a round number in Maya chronology, is a more appropriate as well as convenient point at which to close a general stylistic period than the preceding

¹Spinden 1913, table 2.

²*Ibid.*, 1913, p. 165.

katun. Indeed, in a recent article¹ Spinden has accepted this threefold division of the Old Empire as suggested by the writer, not only for chronological purposes, but also for stylistic classification as well.

Giving due weight therefore to both lines of evidence, stylistic as well as chronologic, it has seemed best to subdivide the Old Empire, the inscriptions of which at Copan form the subject of the present investigation, into three periods as follows:

The Early Period.	From the earliest times down to 9.10.0.0.0.
The Middle Period.	From 9.10.0.0.0 to 9.15.0.0.0.
The Great Period.	From 9.15.0.0.0 to 10.2.0.0.0. ²

Having defined the limits of the several periods as hereinafter used, let us next ascertain what monuments at Copan may be referred to the Early Period. As already stated, the inscriptions at this city are more numerous than those of any other Maya site, and although they date from every period of its occupation as would naturally be expected, they are especially numerous from the Early Period. Indeed, in this latter respect Copan is surpassed only by Tikal, the great northern metropolis of the Old Empire, and probably her most powerful rival (plate 1).

So archaic and fragmentary are some of these earliest texts at Copan that it has been impossible to decipher them exactly and assign them to their proper positions in Maya chronology. That they precede the earliest surely dated monuments there, however, is clear from the earlier character of their glyphs. These are carved in very low relief, in some cases being little more than incised. The technique is crude and the style undeveloped. They present, moreover, certain technical similarities with the most archaic inscriptions at Tikal, which are apparently of about the same period, notably in the irregularity of the outlines of the individual glyph-blocks, as shown in Stela 20 for example (plate 9, *b* and figures 9 and 10), and in the omission of ornamental elements in the bar and dot numerals for 1, 6, 11, and 16, as shown in Altars X and Y (plate 8, *c*, A1, and plate 8, *b*, A1), and Stela 17 (plate 11, *a*, B3). Finally, pronounced complexity and elaboration in glyphic details are also characteristic of the sculptures of the Early Period, as shown in the extensive use of parallel lines in Stela 24 (figure 13), Stela 15 (plate 12), Stela 7 (plate 13), and Stela E (plate 14, *a-c*) for example.

Toward the close of the Early Period at Copan notable advances were made in the art of sculpture. The portrayal of the human figure was attempted, and although the earliest efforts in this direction are somewhat lifeless, as in the case of Stelæ 18, 7, E, and P, for example, they clearly forecast the sculptural brilliance which was to follow a hundred years later.

¹Spinden, 1917, pp. 130-132.

²The several periods of Maya history are given in Appendix II (see p. 505), and their presentation will not be anticipated here, except to note that there were two general divisions: the Old Empire extending from the earliest times to 10.2.0.0.0 and the New Empire from 9.14.0.0.0 to the Spanish Conquest in 1541. As Copan was probably abandoned before 10.2.0.0.0, only the Old Empire and its subdivisions concern us in the present connection.

There are 22 monuments¹ now known which may be assigned to the Early Period at Copan; and this number will doubtless be increased by further excavation. In the very nature of the case, the earliest monuments are the most deeply buried and are also those which suffered secondary usage the most extensively.

Already in ancient times the practice of reusing earlier monuments in later constructions was prevalent. This seems to have been begun as early as Katun 9, *i. e.*, at the end of the Early Period, when part of Stela 24 was reused in the foundations of Stela 7, and was common throughout the Middle and Great Periods. It is particularly true in the case of the so-called banded altars, the only type of altar yet found, in the Early Period. These were repeatedly reused in the foundations of later monuments, as, for example, Altars J' and K' in the foundations of Stela 10, Altar X in the foundations of Stela 5, Altar Y in the foundations of Stela 4, and Altar A' in the Hieroglyphic Stairway of Mound 26. This practice, however, was not confined to the smaller monuments alone. Thus, for example, in addition to the case of Stela 24 just noted, Gordon reports² that Owens found Stela 9 had been reused in the foundations of Stela 8, the former being a very early monument (9.6.10.0.0), and the latter a very late one (9.17.12.6.2). Again, the archaic stela, No. 17, found by Morris in 1912, had been reshaped into a building-block in such a way that part of the original design has disappeared. (See plate 11, *a* and *b*.) And in 1916, during the demolition of the mound at the southeastern corner of the village plaza for building material, part of the top of an archaic stela—No. 21—was found, which had been made over into a building-block in ancient times, all of the inscription being destroyed save only parts of three Initial Series introducing glyphs. (See figure 14.)

During the excavation of Mound 9 at the Main Structure, a small slab of stone, Fragment S', which had glyphs on the under side, was uncovered in the pavement on the eastern slope. It had obviously been reshaped for this secondary purpose and part of the inscription was missing. (See figure 21.) Doubtless complete excavation of the site would bring to light other building-blocks showing similar secondary usage. As the city grew, the earliest monuments probably passed out of fashion—became obsolete as it were—and thus, having outlasted the purposes for which they were originally designed, and being in every case exceptionally good blocks of stone, they were occasionally reused in later constructions.

The earliest monuments at Copan are Altars J', K', L', M', P', and Q', and Stelæ 20, 22, 24, and 25. Unfortunately, none but the next to last (Stela 24) has been surely dated; and two, Altars J' and K', do not have any glyphs at all. Of these earliest altars, all but one, P', have the same design,

¹This does not include the altar of Stela E, since, as will appear later (pp. 109-114), its inscription is only a continuation of the text presented on the stela with which it is associated, and it is therefore to be considered as an integral part of that monument. The above total also takes no account of the several Fragments V', and Fragment S', since the former almost certainly belong to one or other of the several fragmentary stelæ and altars, which were found in their immediate vicinity, and which are already included in the above total. A list of the monuments which may be referred to the Early Period, with their provenance, is given in Appendix IX.

²Gordon, 1896, p. 38.

a large, grotesque serpent's head, and on stylistic grounds all of these monuments, both stelæ and altars, may be referred with certainty to the earliest group of sculptures now extant at the site.

ALTAR J'.

Provenance: Original position unknown. Found in the foundations of Stela 10 (Group 12), and now fallen several hundred meters down the slope to the east of this monument. (See plate 3.)

Date: 9.0.0.0.0 to 9.5.0.0.0.

Text, photograph: plate 8, *d*.

Altar J' is 90 cm. long, 42 cm. wide, and 20 to 22 cm. thick. The top, left end, and front are sculptured, and the back is dressed but has no carving. The right end is rough, as if there were a piece broken off here. The bottom is plain. Two bands, crossing each other at right angles in the upper left-hand corner of the top, extend down over the sculptured end and front. The grotesque serpent's head on the top also extends down over the front. The relief is very low, the carving being little more than outlined. The execution is crude and the design is simple. There are no glyphs on the fragment preserved and it is therefore impossible to date this monument exactly. Concerning its relative age, however, we are not entirely in the dark; since the date of Stela 10, under which it was found, is surely 9.10.19.13.0; Altar J' must therefore be older than this. On stylistic grounds it may probably be referred to the early part of Cycle 9, perhaps to the first four or five katuns.


ALTAR K'.

Provenance: Original position unknown. Found in the foundations of Stela 10 (Group 12), and now fallen several hundred meters down the slope east of this monument with Altar J'. (See plate 3.)

Date: 9.0.0.0.0 to 9.5.0.0.0.

Text, photograph: plate 8, *e*.

Altar K' is in every way the sister piece of Altar J', and may even be a part of the same monument. It is 58 cm. long, 42 cm. wide, and 20 to 22 cm. thick, the last two measurements being identical with the corresponding dimensions of Altar J'. As both J' and K' apparently have their right ends missing, it is not improbable that originally both may have been of the same length. The design is the same in each and is similarly presented. The top, one end, and front are sculptured, the back being dressed but having no carving. The remaining end is rough and shows a broken edge. The bottom is plain. Two bands crossing each other in the upper right-hand corner of the top extend down over one end and the front. There is also a grotesque serpent's head on the top, crudely executed in the same low relief as that on Altar J'.

On the sculptured end of Altar K' there is what appears to be the lower part of the day-sign Ahau . Unfortunately the upper portion is missing and with it the coefficient, if such were ever present. Because it was found in the same place and because of its close stylistic

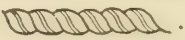
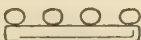


similarity, it has been assigned to the same period as Altar J', namely, to the first four or five katuns of Cycle 9.

ALTAR L'.

Provenance: Original position unknown, probably from just west of the pyramid at the southeastern corner of the village plaza (Group 9). Found built into the altar of the village church, when it was torn down in March 1915. Destroyed in 1916. (See plate 3 and figure 22, g and h.)

Date: 9.4.0.0.0 to 9.6.0.0.0.

Text, photograph: plate 8, f.

Altar L' is 1.7 meters long, 89 cm. wide, and 28 cm. thick. Only the top and front are sculptured. The top is divided by two vertical bands, one on the left, the other in the center. At the left of the central band is a panel of 6 glyph-blocks arranged in two vertical columns of 3 each (see plate 8, f); and at the right is a large, grotesque serpent's head, similar to those on Altars J' and K', except that the one here has a human figure in its widely opened mouth. The front shows a continuation of the central vertical band, the space to the left again being filled with glyphs—4 double blocks—and that to the right with the familiar twisted rope pattern . The back and ends are dressed but not carved. The bottom is plain. Although the glyphs are well preserved, none are decipherable. The first, A1, has the coefficient 3, but the accompanying sign is indeterminate. Its suffix appears to be the moon-sign. B2 may be 9 cycles ; the coefficient is clearly 9, but the sign to which it is attached is  too indistinct to identify with certainty. That the end of Cycle ₉ is recorded here, however, seems improbable, since the day on which this period ended, 8 Ahau 13 Ceh, appears nowhere in the text.¹

The remaining glyphs of the inscription both on the top and front are of unknown meaning.

The style of the carving, although still crude and in low relief, is somewhat better than that on Altars J' and K'. It closely resembles Altar Q' both in carving and arrangement of the design; and since the latter has been pretty definitely dated as 9.4.10.0.0, this monument has been referred to the same general period, *i. e.*, Katuns 4 to 6.

During the writer's last visit to Copan, additional evidence was secured as to the original provenance of both Altars L' and M'. Of the three oldest inhabitants of the village in June 1919, Christina Ramirez, Pio Garin, and Maria Melendrez, all born between 1840 and 1850, two agreed that these two altars originally came from somewhere south of the church. Maria Melendrez believed they had been in the yard of a *rancho* which had formerly stood just south of the old church (figure 22, C), while Pio Garin stated that as a child he remembered them as just south of the large plain stela in front of the mound at the southeastern corner of the village plaza, *i. e.*, some 75 meters farther south. (See figure 22, g and *i*.)

¹As will appear later (pp. 88, 89) this important date is probably recorded on Stela 15 and certainly as one of the two Initial Series on Stela 3 (pp. 157, 158.)

Jacobo Madrid, one of the most intelligent of the middle-aged villagers (born in 1875) is inclined to accept Pio Garin's story rather than that of Maria Melendrez on the grounds that as a child he was a frequent visitor to this *rancho* south of the church, and he believes he would have remembered these altars had they been there at that time. Christina Ramirez, the oldest inhabitant of the village, has no remembrance of them.

The recollections of these three old people go back clearly to a time when the dense bush, which formerly covered the whole valley-floor, came right up to the present village plaza, and when the village itself was still only a small cluster of huts, not more than a dozen scattered through the forest, with small clearings here and there for each *rancho*. This was before the forest had been felled in the valley by the party of colonists from Guatemala between 1860 and 1870, mentioned in Chapter I.

Their testimony on this, as well as on other points to be treated later, may be accepted as correct. In the present case the story of Pio Garin has been followed, being corroborated to a certain extent by that of Jacobo Madrid; but it should be noted that the account of Maria Melendrez differs only by a few meters and both agree as to the part of the village from which these altars originally came. (See figure 22, *g* and *i*.)



In 1892, when the first church was built, they were removed thither and let into the high altar, where they remained for 23 years. (See figure 22, *h* and *j*.) The writer first saw them in March 1915, after this building had been torn down to make room for the new church then in course of construction, at which time the photographs shown in plate 8, *f* and *g* were taken. On returning to the village a year later, he found that a few weeks previously both had been broken into small pieces by a mason from Santa Rosa for use in the walls of the new church and no trace of either was to be found.

ALTAR M'.

Provenance:	Original position unknown, probably from just west of pyramid at southeast corner of village plaza (Group 9). Found built into altar of village church when it was torn down in March 1915. Destroyed in 1916. (See plate 3 and figure 22, <i>i</i> and <i>j</i> .)
Date:	9.4.0.0.0 to 9.6.0.0.0
Text, photograph:	plate 8, <i>g</i> .

Altar M' is 1.3 meters long, 61 cm. wide, and 29 cm. thick, and appears in every way to be the companion piece of Altar L'. The top and front are sculptured with the same design as Altar L', and the top is similarly divided by two vertical bands. To the left of the right band is a panel of six glyph-blocks arranged in two columns of three glyph-blocks each; and to the right is the same grotesque serpent head as in the corresponding position on Altar L', with the same human figure in its mouth. To the left of the vertical band at the left, the stone is broken, though traces of a sculptured design appear at the edge. The vertical bands on top continue down over the front and divide it into three fields; the center has a panel of glyph-blocks, while the right has

the same twisted-rope pattern as in the corresponding position on Altar L'. The back is dressed but not carved. Both ends show fractured surfaces, and it is evident from the design on the top that a piece is missing from each, in which last particular Altar M' differs from Altar L'.

The glyphs are again well preserved, but unfortunately are undecipherable. The first, A₁, appears to be the cycle-sign preceded by 3 and surmounted by 11.  Its meaning is unknown. The omission of ornamental side elements in the number 11 should be noted. As already mentioned,  this is characteristic of the Early Period;¹ A₃ may be the kin-sign, although this identification is doubtful. The remaining glyphs are unknown.

As already explained, the style of carving and the subject-matter are identical with those of Altar L' and very similar to those of Altar Q', for which reason Altar M' has been assigned to the same general period, *i. e.*, Katuns 4 to 6 of Cycle 9. The left-hand ends of both L' and M' are probably missing, since their original designs would appear to have been like that of Altar Q': a pair of grotesque serpent-heads flanking a central glyph panel.

The writer has been unable to find any previous reference either to this altar or to its companion-piece, Altar L'. As noted in the description of the latter, when he was in Copan in March 1915, the village church had just been torn down, and these two monuments had been removed from the high altar, but before he returned the following year both had been destroyed.

Although the exact dates of Altars J', K', L', and M' can not be determined, their relative ages may be accepted as established above. There is very little doubt on stylistic grounds, for example, that Altars L' and M' are later than J' and K'. The technique of L' and M' is a little more advanced, the style a little more developed, and the subject-matter a little more elaborate. These differences, although slight in themselves, in the aggregate indicate a corresponding advance in sculpture and warrant the relative chronological sequence suggested above.

ALTAR Q'.

Provenance: Found on the mound of Stela 7 (Group 9). Now part of a wall behind the house of Domingo Hernández in the southwestern quarter of the village. (See plate 3 and figure 22, *c'*.)

Date: 9.4.10.0.0 12 Ahau 8 Mol (?).²

Text, (a) photograph: plate 24, *f*.

(b) drawing: figure 6.

In 1912 Spinden found four sculptured fragments of archaic monuments behind the house of Domingo Hernández, in the southwestern quarter of the

¹In some provincial cities this practice obtained down to the latest times. For example, at La Honradez, in northern Guatemala (see plate 1), as late as 9.17.0.0.0, *i. e.*, at the height of the Great Period, we find ornamental dots omitted in bar-and-dot numerals, the katun coefficient, A₂, on the west side of Stela 7, being a case in point. Here the number 17 is recorded without an ornamental central dot. But the omission is due to provincialism rather than to archaistic treatment.


²For other monuments recording this same hotun-ending, see Appendix VIII.



village. He was the first to call attention to them, and was then of the opinion that all four were parts of the same monument, to which he gave the name Stela 16.¹ When the writer visited Copan in 1915, he gave these fragments a close examination, and by means of exact measurements, as well as a comparative study of their subject-matter, it was possible to prove that, instead of being parts of one and the same monument, at least three different monuments are represented here, fragments of two stelæ, 18 and 20, and one altar, Q', two of the four fragments possibly belonging to the last. Because of the great importance of these monuments, particularly of Stela 20, which is probably the oldest stela now extant at Copan, and of Stela 18, which Spinden believes to be the first attempt to portray the human figure in front presentation at Copan, special efforts were made to ascertain their original provenance.

The house of Domingo Hernández was built in 1897 by Jacobo Madrid, who gives the following information about these sculptured pieces. He states that he himself carried all four of them, together with several other large unsculptured blocks and smaller sculptured pieces,² from the mound of Stela 7 (see figure 22) to their present position in order to use them in the walls of the house, as well as in the foundation of a low wall along the back corridor.

This house was sold by Madrid in 1901 to Siriaco Ardón, who sold it the same year to Cristobal Melendez. From Melendez's hands it passed to Clementino Lopez in 1903, thence to Manuel Sagastume in 1906, thence to Antonio Guerra in 1909, and finally to Domingo Hernández, the present owner, in 1917. It has seemed advisable to give the history of this house in detail, so that future students will have no difficulty in tracing the pedigree of these highly important fragments and in establishing their original provenance as the mound of Stela 7.

Of the two pieces probably belonging to Altar Q', the first is 91 cm. long and 39 cm. thick. In facing it, the left side presents a broken edge, and it is therefore impossible to give the original width. The present maximum width is 58 cm. The top is very badly mutilated, most of the relief having scaled off. Traces of an interlacing of diagonal bands appear in one place. The bottom and preserved side are dressed,  but not carved. The destroyed side was probably also plain.





The second fragment (see figure 6) shows this same treatment, *i. e.*, top sculptured, the bottom and back dressed but plain. It is 86 cm. wide and 40 cm. thick. The front and both ends are broken off, the present maximum height being 67 cm. The top of this second fragment is divided into three panels by two vertical bands which pass over the top from front to back, overlying the horizontal bands along the edges. (See top of figure 6.) The two lateral panels are incomplete. Both present the same subject, however, as Altars J', K', L', and M', namely, a large, grotesque serpent

¹ Spinden, 1913, table 1.

² One of the two pieces of Stela 25 and Fragment V' 1.

head. The middle field or glyph-panel originally contained four glyph-blocks; though most of the bottom block is now missing. From the part remaining, however, it is possible to estimate the original height of the top as having been 74 cm. As the first two glyph-blocks and upper horizontal band are 37 cm. high, the whole altar must have been twice this height, or 74 cm., of which the bottom 8 cm. are now missing.

The thickness of these two fragments is practically the same, 39 cm. and 40 cm. respectively, and it may well be that both were originally parts of the same monument. If so, it was over 1.78 meters long.

The inscription is fairly clear, with the exception of the last glyph-block. Unfortunately the loss of this glyph-block alone is sufficient to prevent exact dating, since it recorded the terminal day of the Period Ending date in A3b. (See plate 24, f, and figure 6.) This latter glyph is clearly the sign for the lahuntun or 3600-day period  and should be interpreted as indicating that Altar Q' dates from  one of these half-katun periods.¹ The day closing the particular  lahuntun here in question was recorded in A4a, and although the day-sign itself (Ahau) and possibly part of the coefficient are missing, the date of the altar can be limited to one of four possible readings under our postulate, with the probabilities in favor of one in preference to the other three. From what is left of the day coefficients in A4a,  it would appear to have been either 7 or 12, although 6 or 11 or even 8 or 13 are not impossible readings. Two numerical dots appear and the possibility of another, now effaced, must be recognized. Inspection of the coefficient, therefore, gives 7 or 12 as the best values, with 6, 11, 8, or 13 as remoter possibilities.

There were 10 lahuntuns in the first half of Cycle 9, *i. e.*, during the Early Period, as follows:

9.0.10.0.0	7 Ahau	3 Yax
9.1.10.0.0	5 Ahau	3 Tzec
9.2.10.0.0	3 Ahau	8 Cumhu
9.3.10.0.0	1 Ahau	8 Mac
9.4.10.0.0	12 Ahau	8 Mol
9.5.10.0.0	10 Ahau	8 Zip
9.6.10.0.0	8 Ahau	13 Pax
9.7.10.0.0	6 Ahau	13 Zac
9.8.10.0.0	4 Ahau	13 Xul
9.9.10.0.0	2 Ahau	13 Pop

¹The term "lahuntun" has been suggested by the writer for the half-katun or 10-tun period, *lahun* being the Maya word for ten. See Morley, 1917b, p. 197 and plate 2 and Appendix II, pp. 566, 567.

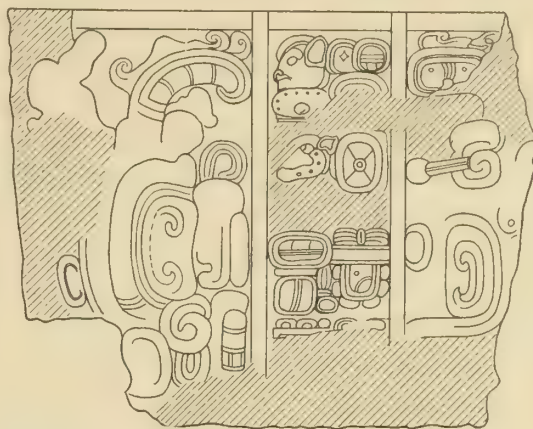


FIG. 6.—Inscription on top of Altar Q'.

Of these, the results of our preliminary inspection would give preference to the first or fifth, 9.0.10.0.0 7 Ahau 3 Yax or 9.4.10.0.0 12 Ahau 8 Mol, respectively, though between these two it is impossible to choose on the basis of anything now recognizable in the text. Moreover, it is even necessary to admit two other values, 9.6.10.0.0 8 Ahau 13 Pax or 9.7.10.0.0 6 Ahau 13 Zac, as remoter possibilities.

There are present, however, two other factors which make it extremely likely that 9.4.10.0.0 12 Ahau 8 Mol was the date originally recorded here. In the first place, historical probability as well as the stylistic criteria favors the later rather than earlier reading, and in the second place there is a stela in the immediate vicinity, *i. e.*, No. 15, recording this same date (see pp. 86-89). Moreover, 9.0.10.0.0 is 40 years older than the earliest surely deciphered date at Copan (Stela 24), and if accepted would cause a lacuna of that length in the sequence of the sculptures. Again, the fact that there is a stela recording the later date, for which no corresponding altar has yet been found, itself renders the later reading the more probable.

The case may be summed up as follows: Although exact proof is wanting, it is not unlikely that Altar Q' may have recorded the lahuntun 9.4.10.0.0, the same as Stela 15, and in that case it may have been associated with Stela 15 in ancient times. If this reading is rejected, the next best appears to be 9.7.10.0.0 6 Ahau 13 Zac, on the ground that the three dots of the day coefficient are obviously *not* of the same size.

The style of Altar Q' closely resembles that of Altars L' and M'. Indeed, if we assume that the missing left end of Altar M', and probably of Altar L' as well, presented the same large serpent heads as their respective right ends, only reversed, an assumption the writer favors, we have exactly the same design as on Altar Q', *i. e.*, a panel of glyphs flanked on either side by a large serpent head and divided by the same arrangement of vertical and horizontal bands. The only difference would then be in the number of the glyph-blocks, Q' having 4 and L' and M' 6. And further, since Q' is almost certainly referable to the lahuntun 9.4.10.0.0, it is probable that L' and M' date from the same general period. Possibly being a little more complex in subject-matter, they may be slightly later, 9.5.0.0.0 or 9.5.10.0.0, for example, although it is dangerous to push the stylistic criteria too far when objects and treatment are so similar.

In closing the presentation of these five archaic altars, it should be pointed out that they are all tables, flat slabs of stone, which were intended to lie on their broad faces rather than stand on their ends or narrow faces. This is conclusively proved by L' and M', where the front narrow faces are sculptured with glyphs, the backs and bottoms being dressed, but plain. In other words, to have both the top and front designs appear right side up at the same time, it is necessary to have the stone lying on its plain broad surface, and face the narrow sculptured front. In this latter position only will the designs on both the top and front appear right side up.

ALTAR P'.

Provenance: Found on the mound of Stela 7 (Group 9). Destroyed in 1915 or 1916. (See plate 3 and figure 22, *d'*.)
 Date: 9.0.0.0.0 to 9.5.0.0.0.

During the writer's visit to Copan in April 1915, he found at the western edge of the mound of Stela 7, in the yard of the house of Clementino Lopez, in the southwestern quarter of the village (see figure 22, *d'*), a badly effaced fragment of what appeared to be an archaic altar. Although only very faint traces of the original design were preserved, it was possible to distinguish the outlines of three glyph-blocks in a vertical column and one or two scrolls or circles above. The single side preserved was dressed, but not carved. The condition of the stone was such that it was unsafe to attempt to date it even upon stylistic grounds, other than to refer it to the early part of Cycle 9. It appears to have been destroyed about the same time as Altars L' and M', as the writer could not find it when he was at Copan in March 1916.

ALTAR X.




Provenance: Original position unknown. Found 1 kilometer west of the Main Structure in the foundations of Stela 5 (Group 8). (See plate 3.)
 Date: 9.3. 6.17.18 11 Eznab 1 Kankin (?) or
 9.5.19.12.18 11 Eznab 1 Kankin (?) or
 9.8.12. 7.18 11 Eznab 1 Kankin (?).
 Text, (a) photograph: plate 8, *c*.
 (b) drawing: Gordon, 1902*a*, plate 13.
 References: Gordon, 1896, pp. 42, 43.
 Gordon, 1902*a*, pp. 130-132, 139-143.
 Maudslay, 1889-1902, vol. I of text, pp. 66, 67.
 Spinden, 1913, p. 161, 164, and table I.

Altar X is 1.22 meters long, 91 cm. wide, and 30 cm. thick. When found, it was serving as the pedestal of Stela 5, about a third of a meter below the level of the pavement of small stones which had surrounded this monument. It is sculptured on its top and four sides, with a design of bands crossing each other at right angles and dividing each sculptured face into four compartments of equal size. The top compartments are plain. Those on the long sides show human figures, and those on the ends are inscribed with glyphs. (See plate 8, *c*.) There are four of these glyph panels, each containing 4 glyphs, a total of 16 for the entire text. The sculpture is in very low, flat relief.

The first two glyphs, A1, B1 (plate 8, *c*), record a Calendar Round date,¹ which reads as follows: 11 Lamat or Eznab, 1, 2, or 3 Kankin. Since neither Lamat nor Eznab can occupy the third or fourth position in any month,² it is obvious that the month coefficient recorded here must be that corre-

¹Calendar Round dates recurred at intervals of 52 years, and unless additional data are present (*i. e.*, the corresponding Initial Series or Period Endings) they can not be assigned to their proper positions in Maya chronology.

²The only positions either of these days could ever occupy were the second, seventh, twelfth, or seventeenth

sponding to the second position, namely 1.¹ That is, the upper and lower dots in B1 are purely ornamental. An examination of the original, moreover, proves this to be the case, the upper and lower dots being clearly different from the middle one. (See plate 8, *c*, B1.) We may therefore restrict this date to one of two possible readings, 11 Lamat 1 Kankin or 11 Eznab 1 Kankin. Since both Lamat and Eznab may occupy the second position in any month, the identity of A1 can be determined only by a study of the internal characteristics of the sign itself. Whenever the normal form² of Lamat appears in the inscriptions, each of the four quadrants into which it is divided has a small circle in the center, thus:  As such circles are entirely wanting in A1, we must identify it as  the sign for Eznab, the only other day-sign possible here. (Compare  A1, plate 8, *c*, with the forms for Eznab in Bowditch, 1910, plate 6.) A1, B1, therefore, reads 11 Eznab 1 Kankin. This latter date, as stated above, recurred at intervals of every 52 years in the Long Count,³ and therefore additional data are necessary if we are to determine the exact position in the Long Count which the ancient sculptors had in mind when they carved it. Finally, as such data appear to be lacking in the text itself, we must depend upon the style of the monument and its position in the stylistic sequence to settle this question.

Fortunately a consideration of the style of Altar X leaves little room for doubt as to its position in the stylistic sequence at Copan. For example, the omission of the ornamental elements on each side of the dot in the number 11 in A1 is a fairly reliable indication that it belongs somewhere in the Early Period; and when this point is taken into consideration with other indubitably technical as well as stylistic crudities present, there can be no doubt that it is one of the earliest sculptures found there. Combining the data derived from these two independent lines of evidence, *i. e.*, the chronologic and artistic, it will be found that there are only three positions possible for the date 11 Eznab 1 Kankin in the Early Period, namely:

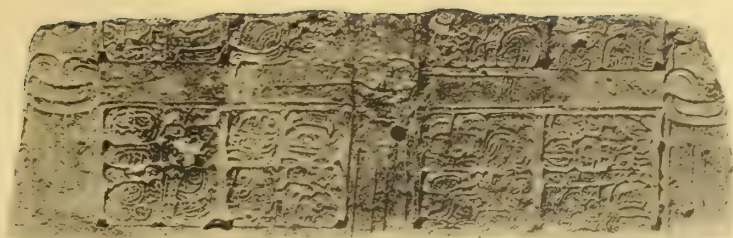
9.3. 6.17.18	11 Eznab 1 Kankin
9.5.19.12.18	11 Eznab 1 Kankin
9.8.12. 7.18	11 Eznab 1 Kankin

But when it comes to choosing further between these three, we venture upon uncertain ground. Indeed, each has something that may be urged in

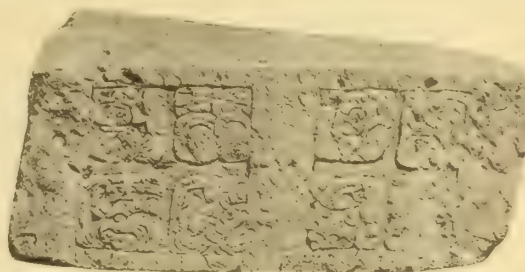
¹Owing to the Maya custom of recording only elapsed time, the first position in a Maya month was written zero, viz, 0 Kankin, the second position, 1 Kankin, the third, 2 Kankin, the fourth, 3 Kankin, etc. The second position, therefore, *i. e.*, 1 Kankin, is the only reading possible here.

²Most Maya glyphs have two distinct forms: (1) the normal form and (2) the head variant. The latter, as its name implies, is a human, animal, or grotesque head. In the day and month-signs the head variants are characterized by the same essential elements as their corresponding normal forms; but in the period glyphs the two forms usually have little or nothing in common. See Morley, 1915, pp. 24, 25.

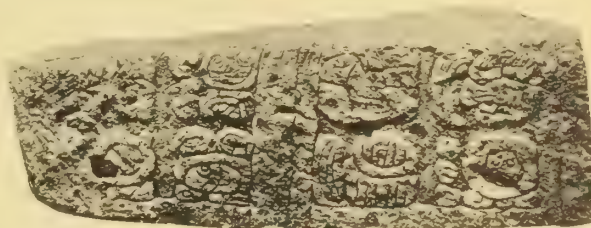
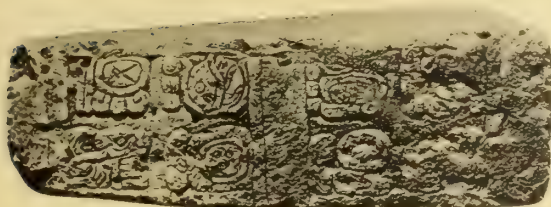
³The Long Count is a term that has been applied to the old Maya chronological epoch. Dates are fixed in this period by the record of their corresponding Initial Series, *i. e.*, their distances from the starting point of Maya chronology. This method of recording dates, as pointed out in Chapter I, was so accurate that a given date could not recur, filling all the given conditions, until after an interval of 374,000 years, and possibly until after 5,000,000 years. See note 1, p. 34.



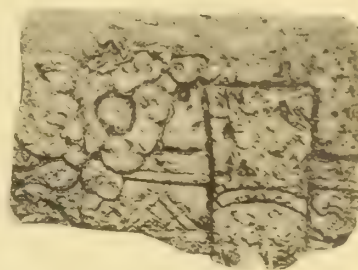
a. Altar A', re-used in the Hieroglyphic Stairway of Mound 26.



b. Altar Y, re-used in the foundations under Stela 4.



c. Altar X, re-used in the foundations under Stela 5.



d. Altar J', re-used in the foundations under Stela 10.

e. Altar K', re-used in the foundations under Stela 10.



f. Altar L', destroyed in 1916.

g. Altar M', destroyed in 1916.

its favor. For example, if the first, 9.3.6.17.18, were the value originally intended for 11 Eznab 1 Kankin here, it would have a peculiar fitness, as being just two days before the end of a tun in the Long Count: 9.3.7.0.0.

On the other hand, there are strong reasons for believing that Altars X and Y and Stelæ 16 and 17 are closely related; possibly X and Y originally having been the altars associated with Stelæ 16 and 17. If this is true, the second date, 9.5.19.12.18, was probably the one intended, since Stela 17 is known to have been erected some time in Katun 6 (p. 90). This second value for 11 Eznab 1 Kankin, moreover, is only 102 days before the end of Katun 5, *i. e.*, 9.6.0.0.0.

The importance of katun, lahuntun, and hotun-endings in the Maya system of counting time can not be overestimated,¹ and it is not at all improbable that the stela with which Altar X was originally associated may have recorded the date 9.6.0.0.0 9 Ahau 3 Uayeb. Indeed, Stela 17 itself may be this very monument, since it surely dates from Katun 6 and could hardly have been other than 9.6.0.0.0 or 9.6.10.0.0.

In the present state of knowledge it is difficult, indeed unsafe, to press the evidence available as to the age of Altar X further than to state that this altar almost certainly may be assigned to one of the three dates suggested, with the probabilities in favor of the second.

Gordon² suggests the reading 4.6.0.0.0 11 Ahau 3 Kankin for this date, based upon an exceedingly ingenious explanation of the decorative elements on the monument, *i. e.*, the bands and human figures. This reading is more than 250,000 years earlier than the earliest contemporaneous date found anywhere else in the Maya inscriptions, and for this reason alone it should be accepted with reservation. Its rejection, however, rests on firmer grounds than historical impossibility, since the text itself does not allow the interpretation he suggests for it. The date actually recorded in A1, B1, as we have seen, is not 11 Ahau 3 Kankin, but 11 Eznab 1 Kankin. Even admitting that the month coefficient looks as much like 3 as 1, it is impossible to identify the day-sign in A1 as Ahau. A study of the forms for Ahau³ elsewhere and also in this same text at H2 discloses no other form which bears the slightest resemblance to this, while its resemblance to the sign for Eznab on the other hand is striking. For these two reasons, then, (1) the inherent historical impossibility of such a remote date and (2) the impossibility of the day-sign recorded being Ahau, the writer has rejected Gordon's reading.

Some of the remaining glyphs of this text are familiar, but of unknown meaning, as C1, F2, G1, and G2. The last glyph, H2, as already noted, is 3 Ahau.

¹This point is fully covered in Appendix VII and its presentation will not be anticipated here.


²Gordon, 1902a, p. 141.

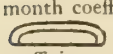
³Bowditch, 1910, plate 6, and in Appendix X.

ALTAR Y.

- Provenance: Original position unknown. Found in the Great Plaza at the Main Structure in the foundations of Stela 4. (See plate 6.)
- Date: 9.4. 8.12.6 6 Cimi 19 Uo (?) or
9.7. 1. 7.6 6 Cimi 19 Uo (?) or
9.9.14. 2.6 6 Cimi 19 Uo (?).
- Text, (a) photograph: plate 8, *b*.
Maudslay, 1889-1902, vol. 1, plate 103, c (front only).
(b) drawing: *ibid.*, plate 104.
Gordon, 1902*a*, plate 14.
- References: Gordon, 1896, pp. 42, 43.
Gordon, 1902*a*, pp. 130-132, 139-143.
Maudslay, 1889-1902, vol. 1 of text, pp. 66, 67.
Spinden, 1913, pp. 161, 164, and table I.

Altar Y is 1.22 meters long, 91 cm. wide, and 38 cm. thick. It was found buried in the ground underneath Stela 4, in the support of which it seems to have served. Its decoration is similar in every respect to that of Altar X. There are the same bands dividing the top and four sides into four compartments each, the same arrangement of figures in the four panels on the long sides, and of glyphs in the four panels on the short sides. Each glyph panel similarly has 4 glyph-blocks, making a total of 16 for the entire text. In size, shape, and decoration the two monuments are practically identical. The text on Altar Y (plate 8, *b*), like that on Altar X, opens with a Calendar Round date, which the writer deciphers as 6 Cimi 19 Uo,¹ although the month-sign in B1 may possibly be Zip instead of Uo.

As the main elements in the signs for Uo and Zip are identical (a pair of bands crossing in the center), one is frequently mistaken for the other, and vice versa. The determining characteristic in each case is the superfix , (or prefix),³ which in Uo has several variants but which in Zip is confined to a


¹A serious error should be noted in Gordon's drawing of this text (1902*a*, plate 14, 3, B1). He shows the month coefficient thus:  that is as 14, 2 bars and 4 dots, the first bar showing a decorative inner line. Maudslay (1889-1902, vol. 1, plate 104, upper half, glyph 2) shows the correct month coefficient 19, but makes the right-hand bar thicker than the middle and left ones, and introduces an interior decoration in the dots, not present in the original. An examination of the original showed that Maudslay's drawing of the coefficient is substantially correct, except that all three of the bars are practically of the same thickness. Gordon's error seems to have arisen through mistaking the line between the first and second bars for a decorative element of the first bar, thus reducing the number of bars from 3 to 2 and making the coefficient 14 instead of 19.

²There are four other month signs Chen, Yax, Zac, and Ceh, which have their main elements alike. These also are to be distinguished from each other only by their superfixes or prefixes. It should be noted in this connection that the superfixes in the signs for Zip and Ceh are identical, the only difference between the two signs being their main elements.

See last two signs above.

³In one text at Copan, Altar Q, E6, the Uo superfix is wanting altogether. In this case the main element takes the unusual form shown herewith.



single form.¹  The superfix in B1 (plate 8, *b*), however, bears a strong resemblance to the first and second variants of the Uo superfix just given, and at the same time is totally dissimilar to any of the known forms of the Zip superfix. The reading 6 Cimi 19 Uo therefore appears reasonably certain.²

This date occurred in Cycle 9 within the limits stylistically probable at three³ positions, namely:

9.4. 8.12.6 6 Cimi 19 Uo
 9.7. 1. 7.6 6 Cimi 19 Uo
 9.9.14. 2.6 6 Cimi 19 Uo


Whichever of these values is chosen, it will be found that it is within 21 years of one or other of the three values already given for Altar X, viz:

9.4.8.12. 6	9.7. 1. 7. 6	9.9.14. 2. 6
9.3.6.17.18	9.5.19.12.18	9.8.12. 7.18
<hr/>	<hr/>	<hr/>
1.1.12. 8	1. 1.12. 8	1. 1.12. 8

In other words, although the dates of Altars X and Y may be 73 or even 125 years apart,⁴ in view of their very close stylistic similarity, they were probably only 21 years apart, which is as near as their dates will permit them to be. Therefore, if we could establish the date either of Altar X or Altar Y, the corresponding date in the other set would probably be correct for the other monument. Unfortunately, viewed in the light of Altar X, the most probable date for Altar Y would be the second value given above, whereas, judged on its own merits alone, the first is the only one of the three which has anything particular that may be urged in its favor. To begin with, 9.4.8.12.6 is less than two years earlier than the date of Stela 15, which is 9.4.10.0.0.

Again, this date is only 104 days earlier than the next tun ending in the Long Count, 9.4.9.0.0. Finally, it is only 454 days earlier than one of the two best readings for Stela 16, 9.4.9.17.0. Even in spite of these rather satisfactory connections with other monuments, it appears unwise in the absence of more definite evidence to accept this reading as final or to reject altogether the other two possibilities. Further consideration of the date of Altar Y will be deferred until after Stelæ 16 and 17 have been described.

The remaining glyphs of this text are either unfamiliar or of unknown meaning.

¹In three texts at Copan, namely, Stela N(east side), A15, Altar L, A2, and the reviewing stand on the south side of Mound 11, v1, another variant for Zip seems to have been used.  These three texts date from the same decade (9.16.10.0.0 to 9.17.0.0.0), and the close similarity of a single of a single at Copan sculptor. At least, the above variants have not been found elsewhere, and they appear only during this particular decade.

²In order that the student may draw his own conclusions, however, Appendix X should be consulted, where all known occurrences of all the day and month-signs in the Copan inscription are listed.

³The very earliest occurrence of 6 Cimi 19 Uo in Cycle 9, *i. e.*, 9.1.15.17.6, is not included above, as it is too early to be either historically or stylistically probable.

⁴That is 1 or 2 Calendar Rounds + 1.1.12.8.

ALTAR A'.

- Provenance: Original position unknown. Found on the under side of the last block of Step P of the Hieroglyphic Stairway on the west side of Mound 26 at the Main Structure. (See plate 6.)
- Date: 9.3.0.0.0 to 9.7.0.0.0.
- Text, photograph: plate 8, *a*.
Gordon, 1902, plate 13, U.
Spinden, 1913, plate 20, I.
- References: Gordon, 1902, p. 19.
Gordon, 1902*a*, p. 130.
Maudslay, 1889-1902, vol. I of text, pp. 66, 67.
Spinden, 1913, p. 161, and table I.

Altar A' was found during the excavation of the Hieroglyphic Stairway of Mound 26, on the under side of the last block in Step P (see p. 251, note 2), having been cut down from some larger monument in ancient times.¹ In reshaping it for secondary use here, part of the original design was broken off and is now missing. Judging from the fragments preserved, the original monument must have closely resembled Altars X and Y, though the arrangement of the intersecting bands is slightly different. On Altar A' three vertical bands and one horizontal band divide the field of the single sculptured surface preserved into four panels of 4 glyph-blocks each, making a total of 16 glyph-blocks for this one side alone. The difference between this monument and Altars X and Y is that the two latter have no horizontal bands crossing their short sides where the glyphs are presented. Consequently, there are only two glyph panels on each short side of Altars X and Y as compared with four glyph panels on Altar A'. Unfortunately, in reshaping this block for use in the Hieroglyphic Stairway, the upper row of glyphs was broken off clear across the top, and since the date was probably presented in the upper left-hand corner, as on Altars X and Y, it is impossible to fix the position of this monument in the Long Count. The remaining glyphs have escaped interpretation up to the present time, although a few are not unfamiliar. It is safe, however, to assign Altar A' to the same general period as Altars X and Y on the basis of its close stylistic similarity, apparent in execution, subject-matter, and arrangement. With Altar A' we reach the last of this type of monument in the Early Period, and turn next to a consideration of the early stelæ, of which there are 13 now known.



STELA 22:

- Provenance: Found on the north side of a small plaza on the southwestern outskirts of the village (Group 9). Now in the cabildo. (See plate 3, and figure 22, *w'*.)
- Date: 9.3.0.0.0 to 9.5.0.0.0.
- Text, (a) photograph: plate 28, *b*.
(b) drawing: figure 7.

Only a single small fragment of this stela was found. (See figure 7.) The part recovered is 53 cm. long, 47 cm. wide, and 32 cm. thick. From the size of the glyph-blocks preserved, 16 cm. high by 21 cm. wide, it was possible to estimate the original width of the monument to have been 58 cm.

¹Gordon, 1902, p. 19, and 1902*a*, p. 130.

This fragment was found in a small plaza on the southwestern outskirts of the village on the edge of the bank or terrace which overlooks the flood-plain of the river. (See figure 22, *w'*.) It was lying on the north side of this plaza in front of a low platform mound approached by five broad steps on its southern side. Although there was very little débris in this court, excavations were made on the north side with the hope that other fragments might be recovered, but nothing was found. Indeed, it is more than probable that the other pieces have been destroyed. In March 1916, when this fragment was found, the blocks of stone forming the stairways of the mounds surrounding this court had been removed and were about to be broken up for paving material for the streets. The single piece recovered may have been removed from one of these steps, and it was rescued from destruction only by the writer's chance visit at the time. It is presumably part of a stela, but of very archaic character. The front is sculptured with glyphs, the back and left side being plain, having been dressed smooth by pecking and rubbing. The right side was missing, as well as the top and bottom. There is a plain marginal band along the left edge of the front. This presentation is unique, and almost raises the question whether this fragment ever belonged to a stela, possibly having been part of an altar. The arrangement of the glyphs in two vertical columns, however, suggests a stela, and for this reason it has been so identified here. On the basis of the arrangement of the design, which is the simplest possible, *i. e.*, one surface sculptured, the other three being left plain, Stela 22 has been assigned to Class 1.

Parts of 6 glyph-blocks are preserved, and although none is of recognizable form, they all clearly indicate the archaic character of the inscription. Note the highly ornamented numerical bars in A2 and the archaic prefix in B2. The latter is identical with the prefix of c6 on Stela 15  and of B5 on Stela 9  and very similar to that of B5 on Stela 24. But these three monuments are very early, 9.4.10.0.0, 9.6.10.0.0, and 9.2.10.0.0 respectively, for which reason Stela 22 also has been assigned to Katuns 2 to 4.

STELA 25.

Provenance:	Found on the mound of Stela 7 (Group 9). Two fragments only recovered. Now in the cabildo. (See plate 3, and figure 22, <i>f'</i> and <i>g'</i> .)
Date:	9.2.10.0.0 3 Ahau 8 Cumhu (?).
Text, drawing:	figure 8.

Only two contiguous fragments of this monument have been recovered up to the present time, both from the southwestern quarter of the village, one having been found behind the house of Clementino Lopez in the mound of Stela 7 in 1918 (figure 22, *f'*), and the other 40 meters to the northwest at the house of Domingo Hernández in 1919 (figure 22, *g'*). These two fragments were fitted together in June 1919 and found to be parts of a new monument, to which the name Stela 25 was given.

Fortunately the history of the Hernández house is well known (see p. 60), and it is possible to establish the fact that the fragment found

there in 1918 had been carried thither from the mound of Stela 7 in 1897 during its construction. (See figure 22, *e'*.)

When fitted together these two fragments make one piece, which originally formed a part of the right half of the front (or back) of a stela, the adjoining surface to the right being dressed but not sculptured, and that to the left being rough, as though a part were broken off here.

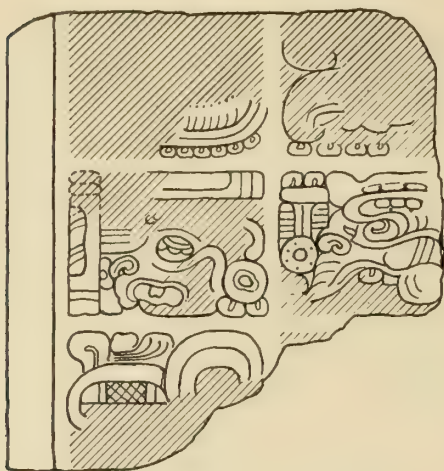


FIG. 7.—Inscription on front of Stela 22.



FIG. 8.—Inscription on front (or back) of Stela 25.

The single sculptured surface of the assembled piece (see figure 8) shows parts of two glyph-blocks, 34 cm. wide and at present 21 cm. high. And if, as the writer believes, the two upper signs are parts of the same glyph-block as the two lower ones—and no space shows between the two characters in the upper half of the glyph-block (see figure 8)—the glyph-blocks on this monument originally must have been 30 cm. high. Finally, if the piece recovered represents only the right half of the monument, as seems possible, its total width originally must have been 66 to 68 cm. It is possible, however, that the piece as found, represents the original width of the monument, in which case it was only 33 or 34 cm. wide.

The only surely decipherable character is the lower left-hand glyph in the upper glyph-block, which unmistakably records the day 3 Ahau. This is surmounted by a tassel-like ornament practically identical with that just described as occurring in the day-signs on Stelæ 24, 15, and 9.

This glyph is followed by a sign, the coefficient of which is surely 8. Parts of three other signs show, but they are all of unknown meaning.

In order to decipher this date, it is first necessary to make the following postulate, namely, that this day 3 Ahau stood either at the end of some katun or lahuntun of the Long Count. This postulate, as will appear at the end of this chapter, is amply substantiated by practically all the stelæ of the Early Period at Copan, and if hotuns, *i. e.*, quarter katuns, be included, it is substantiated by 95 per cent of all stelæ throughout the Maya area.

As applied to Stela 25, this postulate restricts the number of places where this day 3 Ahau could have occurred in the first half of Cycle 9 to 2 places out of a possible 277, one a katun-ending, A, and the other a lahun-tun-ending, B, as follows:

9.0.0.0.0	8 Ahau 13 Ceh	9.0.10.0.0	7 Ahau 3 Yax
9.1.0.0.0	6 Ahau 13 Yaxkin	9.1.10.0.0	5 Ahau 3 Tzec
9.2.0.0.0	4 Ahau 13 Uo	B 9.2.10.0.0	3 Ahau 8 Cumhu
9.3.0.0.0	2 Ahau 18 Muan	9.3.10.0.0	1 Ahau 8 Mac
9.4.0.0.0	13 Ahau 18 Yax	9.4.10.0.0	12 Ahau 8 Mol
9.5.0.0.0	11 Ahau 18 Tzec	9.5.10.0.0	10 Ahau 8 Zip
9.6.0.0.0	9 Ahau 3 Uayeb	9.6.10.0.0	8 Ahau 13 Pax
9.7.0.0.0	7 Ahau 3 Kankin	9.7.10.0.0	6 Ahau 13 Zac
9.8.0.0.0	5 Ahau 3 Chen	9.8.10.0.0	4 Ahau 13 Xul
A 9.9.0.0.0	3 Ahau 3 Zotz	9.9.10.0.0	2 Ahau 13 Pop

The foregoing tabulation shows that under our postulate there are only two readings possible for this date in the first half of Cycle 9, namely, A, 9.9.0.0.0 3 Ahau 3 Zotz and B, 9.2.10.0.0 3 Ahau 8 Cumhu; and of these it can be shown that the latter is by far the better choice.

In the first place, 9.9.0.0.0 is too late on stylistic grounds for the glyphs of Stela 25 to have been executed, which, as we have seen, more closely resemble those of Stelæ 24, 15, and 9 (9.2.10.0.0, 9.4.10.0.0, and 9.6.10.0.0 respectively) than those of Stelæ 7, E and P (9.9.0.0.0, 9.9.5.0.0, and 9.9.10.0.0 respectively); and in the second place, the earlier reading receives remarkable corroboration from the coefficient of 8 in the next glyph. For in the event of the latter being the correct reading, the next glyph might then be 8 Cumhu, that is, the corresponding month part of the Initial Series terminal date, 9.2.10.0.0 3 Ahau 8 *Cumhu*.

It is true the human head to which this 8 is attached bears little or no resemblance to any known form for the month Cumhu,¹ but it should be borne in mind in this connection that at the early period Stela 25 was carved, many glyphs had not yet developed the characteristics by which they were distinguished in later times, and that the glyph in question may therefore possibly be an early form for this month.

The corroboration afforded by finding the appropriate month coefficient (*i. e.*, 8) in the following glyph more than counterbalances the failure to discover in the sign itself recognizable characteristics of Cumhu, and the writer therefore believes that the date here recorded is probably 9.2.10.0.0 3 Ahau 8 Cumhu. This date appears as the Initial Series on Stela 24 (see pp. 80, 81), and at first it seemed possible that these two fragments might be parts of that monument; but a comparison of their glyph-blocks immediately showed that this never could have been the case, those on Stela 24 being 18 to 19 cm. high and 27 to 28 cm. wide, and those on Stela 25, 30 cm. high and 34 cm. wide, and it was therefore necessary to recognize this piece as part of another stela, to which the number 25 has been given.

¹See Bowditch, 1910, plate 10, and Appendix X, p. 592.

STELA 20.

Provenance: Found on the mound of Stela 7 (Group 9). Now in the cabildo. (See plate 3, and figure 22, *v.*)
 Date: 9.1.10.0.0 5 Ahau 3 Tzec (?).
 Text, (*a*) photograph: plate 9, *b*.
 (*b*) drawing: figures 9, 10, and 11.

The largest fragment of Stela 20 (figure 9 and plate 9, *b*), and in fact the only one which is surely a part of this monument, was found by Spinden in 1914, in the house of Domingo Hernández. In 1916, however, the writer discovered two other widely scattered fragments (see figure 10), one built into the wall of the house of Pedro Ramirez in the street leading south from the southwestern corner of the village plaza, and the other in the foundations of the now destroyed house of Felix Galván, just east of the new market on the street leading west from the same corner, and some 100 meters distant from the first. (See figure 22, *y* and *z* respectively.) On being assembled, these last two fragments were found to fit together exactly and thus to have been parts of the same monument; and in the discussion which follows they will be referred to as one piece. The important question, however, is whether or not this second piece is a part of the same monument as the fragment found by Spinden in the house of Domingo Hernández in 1914.

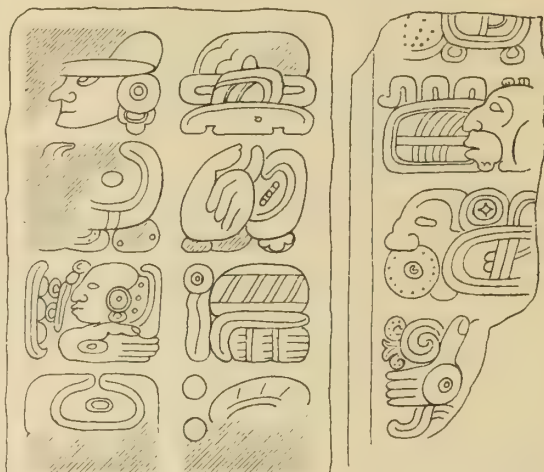


FIG. 9.—Inscription on front and right side of Stela 20 (Fragment 1).

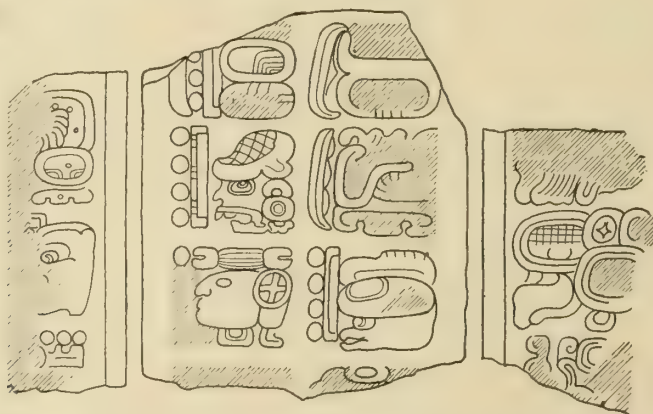


FIG. 10.—Inscription on back and sides of Stela 20 (Fragments 2 and 3).

The answer to this question must be ascertained, first from the measurements of the two pieces, next from their subject-matter, *i. e.*, the inscription, and finally from the stylistic criteria present. The measurements of the two pieces are compared on page 73.

It will be seen from the measurements below that both pieces are of the same width, 52 cm., but since both are only fragments, the present heights have no significance. Further, as the pieces can not be fitted together back to back, it is impossible to determine the original thickness of the monument exactly. Judging from the incomplete glyph-blocks on their respective sides, the latter must have been of unusual width, at least 23 to 24 cm. and 22 cm. respectively, that is, wider than the glyph-blocks on their corresponding fronts. This almost certainly indicates that originally there had been only one column of glyph-blocks on the sides of each. And on the basis of this assumption, the former thickness of each piece can be estimated to have been about 40 cm.

	From house of Hernández.	From houses of Ramírez and Galván.
Dimensions of the fragments :	<i>cm.</i>	<i>cm.</i>
Width.....	52	52
Present height.....	75	64
Present thickness.....	30	20
Dimensions of the glyph-blocks:		
Front and back:		
Height.....	16 to 18	16 to 16.5
Width.....	19 to 20	19 to 20
Sides:		
Height.....	16 to 19	17 to 19
Present width.....	23 to 24	22

Continuing this comparison, it will be noted that both pieces have double columns of glyph-blocks on one of their two broad faces and that the opposite broad faces are fractured.



The measurements of their respective glyph-blocks show even more satisfactory agreements. The widths—the important measurement, if both are parts of the same monument—are identical, 19 to 20 cm., and the heights vary by less than 2 cm. at the most. On the sides it is impossible to secure the original widths, but the heights are the same in both cases.

This identity in the essential measurements, not only of the two pieces but also of their respective glyph-blocks, strongly suggests that both are parts of the same monument; but if so, how were they related. All attempts to fit them back to back on the ground failed, and indeed it was apparent that the two fragments recovered never could have fitted together in that way. It will appear presently, in the discussion of the inscription, that the fragment found by Spinden in 1914 was surely a section of the front of the stela, coming from immediately below a top section, 1.14 meters long by calculation, which presented the Initial Series. Since the piece found in 1916 is only 64 cm. long, and could not have been from the front in any case, it seems more probable that it came from a lower section of the same stela (if it belongs to it at all) instead of from the top, as this missing top was 50 cm. longer, if it broke in one piece. The best assemblage of the two pieces is shown in figure 11, where the second piece is placed at the bottom.

Spinden supposed the fragment found by him to be a part of Stela 18, but its inscription indicates that this could not have been the case.

This fragment, as just noted, was clearly from the middle part of a monument. This fact is established by internal evidence in the text itself on the front (see plate 9, *b*, and figure 9), which unmistakably records a complete Supplementary Series.

Let us analyze this evidence further. So far as the writer knows, there is not a single instance in the Maya inscriptions where a Supplementary Series is recorded *t* at an Initial Series does not immediately precede it; but the reverse of this proposition does occur, *i. e.*, the record of an Initial Series without an accompanying Supplementary Series, although rarely. Therefore it is safe to conclude that the fragment shown in plate 9, *b* was originally preceded by one or more fragments which presented an Initial Series.

The last glyph  in plate 9, *b* is the month-sign  of an Initial Series terminal date,¹ but unfortunately the fracture runs across its lower half, and beyond the fact that the coefficient is surely 3, it is difficult to determine at first inspection what month-sign was recorded here.

Making the same postulate as in the case of Stela 25 (p. 70), namely, that the Initial Series of Stela 20, whatever it was, recorded a katun, lahuntun, or at least a hotun² ending in the Early Period, it will be shown presently that the possible readings for this Initial Series, which could have had a month coefficient of 3, under our postulate are limited to ten.

Further, the fact that the month coefficient of the Initial Series terminal date on Stela 20 is 3, is at least strong presumptive evidence that we have here either a katun, lahuntun, or hotun ending, since these only could end

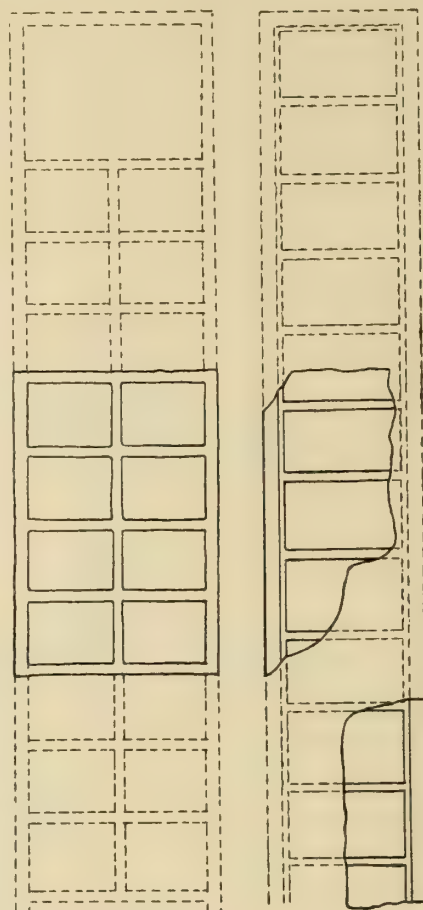




FIG. 11.—Diagram showing probable assemblage of Fragments 1, 2, and 3 of Stela 20.

¹That this glyph could possibly be the *day* of the Initial Series terminal date would appear highly unlikely from what is left of it. The part preserved looks like a superfix, *i. e.*, it curves in at both ends, and is ornamented with lines unlike any known forms of the day-sign cartouche. This in itself renders such a possibility extremely remote, even if such a position for the day-sign were not contrary to the general practice of recording the day at the end of the Initial Series number, and not at the end of the Supplementary Series. Out of 80 Initial Series, only 7.5 per cent. were found to have the Initial Series terminal date follow the Supplementary Series. See Morley, 1916, p. 368, note 1.

²The term "hotun" has been suggested by the writer for the quarter katun or 5-tun period, "ho" being the Maya word for five. This whole question, *i. e.*, what chronological considerations controlled the erection of the stelæ, a matter which very closely touches their probable function and significance, is extensively reviewed in Appendix VII, and also in Morley, 1917*b*.

on days the corresponding month coefficients of which were either 3, 8, 13 or 18.¹ It is therefore presumptively probable that the missing Initial Series of this monument recorded the end of some katun, lahuntun, or hotun in the Early Period. Referring to Goodman's tables,² it will be found that there were ten katuns, lahuntuns, and hotuns in the Early Period, that ended on days the month coefficients of which were 3, namely:

9.0.10.0.0	7 Ahau 3 Yax	9.5.15.0.0	3 Ahau 3 Uo
9.1.10.0.0	5 Ahau 3 Tzec	9.6. 0.0.0	9 Ahau 3 Uayeb
9.2.15.0.0	9 Ahau 3 Kayab	9.7. 0.0.0	7 Ahau 3 Kankin
9.3.15.0.0	7 Ahau 3 Ceh	9.8. 0.0.0	5 Ahau 3 Chen
9.4.15.0.0	5 Ahau 3 Yaxkin	9.9. 0.0.0	3 Ahau 3 Zotz

Because of the extremely archaic style of Stela 20, which is surely earlier than that of Stela 24, the date of which is definitely fixed as 9.2.10.0.0, it is possible to eliminate all but the first two values in the above list. To choose further between these, however, it is necessary to depend upon internal evidence supplied by the month-sign itself, that is, the last glyphs in plate 9, *b*, and figure 9. Unfortunately the lower half of this glyph is missing. The upper half, however, is fairly clear, and as it bears no resemblance to any of the known forms for Yax,³ the first value above may be eliminated, which leaves the second as the only possible reading for this date under our postulate. Moreover, inspection of what is left of the month-sign shows that its superfix has a series of parallel lines  which is characteristic of the superfix of the sign for the month Tzec; and on the strength of this corroboratory evidence from the text itself it seems not unlikely that the date of Stela 20 may be 9.1.10.0.0 5 Ahau 3 Tzec. 

The correctness of this reading, it is obvious, rests upon the truth of our two postulates: (1) that Stela 20 dates from the early part of Cycle 9, and (2) that it records an even katun, lahuntun, or hotun ending in the Long Count. Concerning the first, let us examine the stylistic criteria present and see where this monument is to be assigned on stylistic grounds. As already pointed out, the style of Stela 20 is probably more archaic than that of any other monument at Copan. Indeed, in order to find monuments of equal or greater age, from which comparative stylistic criteria may be

¹All time periods above the kin or day in the Maya chronological system ended on some one of the thirteen days Ahau. And since Ahau could have only a corresponding month coefficient of 3, 8, 13, or 18, all hotun-endings were thereby automatically restricted to one of these same four numerals for their month coefficients.


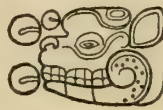
²For deciphering Maya dates, as well as performing other calculations arising therefrom, the use of Goodman's Archaic Annual Calendar and Goodman's Archaic Chronological Calendar is strongly recommended. See Goodman, 1897. Other tables, although somewhat less convenient, are those devised by Gates. See Gates, 1900. A longer method involving reduction of the Maya terms to the decimal system was first used by Förstemann in his pioneering work on the Maya hieroglyphic writing. See Förstemann, 1887, p. 36. Aside from any sentimental interest attaching to this method as being the first, it is also probably the most readily comprehended by the European mind, because it reduces the Maya periods to the terms of our own decimal notation. For an extended treatment of this method, see Morley, 1915, particularly Chapters III and IV. Bowditch (1910, Appendix VII) has devised a method which considerably decreases the amount of purely arithmetical work in performing the different calculations present in the inscriptions, and R. K. Morley (1918) has developed this method even further. While the greater brevity of these is conceded, their use by beginners is hardly to be recommended, because of the complexity of the arithmetical principles upon which they depend; and for performing the common calculations present in the inscriptions, Goodman's tables are more convenient and expeditious.

³See Bowditch, 1910, plate 10, also Appendix X.

derived, it is necessary to look to Tikal, the only other city now known which can lay claim to an equal antiquity with Copan.¹

Tikal is probably the site best suited for the study of the art of the Early Period. Four of the five earliest dated stelæ in the Maya area are found here,² and there are also more undated archaic monuments here than at any other site, Copan not excepted.³


The most constant characteristic of all the earliest stelæ at Tikal is the pronounced irregularity in the outlines of the individual glyph-blocks.

Two examples, one from Stela 3 and the other from Stela 10, will suffice to illustrate this point. On Stela 3 A2  is the katun-sign and coefficient. Note how irregular the outline is, and how inadequately it fills the available space. On Stela 10 A31 the uinal-sign and coefficient, also show the same characteristic. 

In later times, both at Copan and elsewhere, the glyph-blocks assumed more or less rigid rectangular outlines with only the corners slightly rounded, but in Stela 20, which represents perhaps one of the first attempts to carve an inscription upon stone at Copan, and probably the earliest monument yet found here, this regularity in glyphic outline had not yet been achieved.

The earliest stela yet found in the Maya area, No. 9 at Uaxactun, has this same characteristic. The glyph-blocks are not only irregular in outline, but also unevenly arranged in the two vertical columns; that is, a glyph-block in one column is not always exactly opposite the corresponding glyph-block in the other. (See figure 66.)

Two other pieces of sculpture still more archaic, the Leyden Plate and the Tuxtla Statuette, also present this same characteristic. The Leyden Plate is a small celt-like object of nephrite about 21.6 cm. long, 8.5 cm. wide, and 2 to 5 mm. thick, upon the front of which a late Cycle 8 Initial Series, 8.14.3.1.12, is incised. The point claiming our particular interest in this connection is the fact that on this very early celt, which antedates Stela 24 at Copan and Stela 3 at Tikal by some 170 years, and Stela 9 at Uaxactun by 7 years, the outlines of the glyphs are even more irregular. (See figure 65.)

The uinal glyph of the Initial Series here, A5, well illustrates this peculiarity. Not only is it irregular in outline, but its coefficient  also is asymmetrically placed with reference to it.⁴


¹Uaxactun (see plate 1) has earlier dates than Tikal, but it is so near by, not more than 25 kilometers distant, that it undoubtedly was tributary to the larger city, and has been considered here as one with it.

²Uaxactun, Stela 9, 8.14.13.10.15, and Stela 3, 9.3.13.0.0; Tikal, Stela 3, 9.2.13.0.0, and Stela 10, 9.3.11.2.0(?); and Copan, Stela 24, 9.2.10.0.0. In the next to last case (Stela 10 at Tikal) there is some doubt as to the value of the kin coefficient. However, if it were 19, the highest value possible, the above reading is correct to within 20 days of the true date. To these should be added the doubtfully dated: Stela 5 at Uaxactun, 8.15.10.3.12; Stela 8 at Tikal, 9.0.10.0.0; and Stela 9 at Tikal, 9.2.0.0.0.

³The writer is inclined to believe that of the 17 sculptured monuments described by Maler (1911, pp. 61-91) at Tikal, all but 3 or 4, Stelæ 5, 11, and 16, and possibly 6, belong to the Early Period, and most of them probably to its earliest part.

⁴For further particulars concerning this interesting specimen, see Leemans 1877, pp. 299-301, Holden 1881, pp. 229-237, Morley, 1915, pp. 196-198 and Chapter V, pp. 411, 412.

The Tuxtla Statuette, a small anthropomorphic figure about 16.5 cm. high and 9.5 cm. in diameter at the base, is also of nephrite. It presents a still earlier Cycle 8 Initial Series, namely, 8.6.2.4.17, which antedates Stela 24 at Copan and Stela 3 at Tikal by more than 300 years, and Stela 9 at Uaxactun by about 150 years. Here again the outlines of the glyphs are still more irregular and sketchy. (See figure 63.)

The first glyph on this figure, A1, probably the Initial Series introducing glyph,  illustrates the extreme of irregularity in glyphic outline; indeed, there appears to have been only a very casual attempt to make this glyph-block rectangular at all.¹

From the foregoing it is apparent that irregularity of glyphic outline is the most reliable criterion of archaism in glyph delineation—the more archaic the text, the more irregular the outlines of its glyphs. This is perhaps a natural consequence of transferring a graphic system developed upon wood or fiber-paper to stone, since the earliest attempts at glyphic delineation on stone could hardly have had the same rigid rectangular outlines as those made after the sculptors had had long experience with the new medium.

Returning to Stela 20, it is possible that in this monument we have the only one at Copan which presents this extremely archaic characteristic; and so far as its stylistic position is concerned, there can be no doubt that it is the earliest stela, if indeed it is not the earliest monument of any type yet found here, being certainly prior to Stela 24, the earliest surely deciphered stela, and probably prior to Altars J', K', L', M', P', and Q' as well.

Concerning the second of the two postulates above upon which the reading suggested rests, namely, that Stela 20 records a katun, lahuntun, or hotun-ending, it should be noted that the vast majority of all Maya stelæ do record such endings and that antecedent probability therefore is overwhelmingly in its favor.²

In conclusion, therefore, it appears that notwithstanding the fact that this inscription is fragmentary, only one glyph out of the original eight in the Initial Series being preserved, the stylistic and textual corroboration is so satisfactory that the date suggested may be accepted as probably correct and the stela itself regarded as the oldest monument so far discovered at Copan.

On the basis of the arrangement of the subject-matter, Stela 20 has been assigned to Class 3, *i. e.*, all four faces sculptured with glyphs, Class 2 (not encountered so far) being reserved for monuments sculptured on two opposite faces, the remaining faces being left plain.

¹For a complete description of this most important object, see Holmes, 1907, Morley, 1915, pp. 194–196. and Chapter V, p. 403.

²See also Appendix VII.

STELA 24.

Provenance:	Original position unknown. Found in the foundations of Stela 7 (Group 9). Now in the cabildo. (See plate 3, and figures 12, <i>b</i> , and 22, <i>q</i> .)
Date:	9.2.10.0.0 3 Ahau 8 Cumhu.
Text, drawing:	figure 13.

With Stela 24 we reach at last firm chronological ground, this being the earliest monument at Copan the date of which has been surely deciphered. Only a single piece has been found, probably not more than a quarter of the original monument, although possibly as much as a third of the sculptured part. The fragment recovered is 61 cm. high, 73 cm. wide, and 29 cm. thick. The front and back are sculptured with glyphs, the two sides being plain, though dressed smooth.

This arrangement of the design is a step beyond that seen in Stelæ 22 and 25 (Class 1), where only one face, *i. e.*, the front, is sculptured with glyphs, the remaining three faces being left plain; and somewhat less advanced than Stela 20 (Class 3), where all four faces are sculptured. On the basis of arrangement, therefore, Stela 24 may be assigned to a new class, 2.

The circumstances surrounding the discovery of this fragment are of especial interest because of its unusual importance, already noted, no less than that of presenting the earliest date yet deciphered at Copan about which there can be no doubt.

In August 1916 the writer received a letter from Copan stating that a "piece of stone inscribed with hieroglyphics" had been found recently during the course of some excavations in the village; but it was not until May of the following year that he had an opportunity of examining this fragment at first hand, and of ascertaining the circumstances which surrounded its discovery.

During the early part of the summer of 1916, Clementino Lopez, living near the southwestern corner of the village plaza (see figure 22, *F*), was digging a well in the yard behind his house, and required some stone with which to line it. In the middle of this yard there is a low mound of earth and stone 70 cm. high, 27 meters long north and south, and 17 meters wide east and west, near the eastern edge of which Maudslay had found Stela 7 lying in 1885.¹ (See figure 18, *b*.) Lopez had dug into this mound for stone to line his well, and at a depth of about half a meter below the surface he found a *pila* or cylindrical altar with a depression in its top (figure 12, *d*). This is 46 cm. high, 56 cm. in diameter at the top, and tapers toward the bottom, being 39 cm. in diameter at the base.

Just below this altar was found the fragment of Stela 24 shown in figure 13 (for its position, see figure 12, *b*), which in turn rested directly upon a large, plain rectangular slab of stone 1.62 meters long (north and south), 96 cm. wide (east and west), and 29 cm. thick (figure 12, *a*). Above this slab and closely packed in around the altar and stela-fragment were many

¹See pp. 102, 103.

small broken stones laid in lime mortar, the remains of the two pavements of lime-plaster and the strata of small broken rock of which the mound of Stela 7 was composed. (See figure 19, *b*, *c*, *d*, *f*, and *g*.)

There is little doubt but that this slab is *in situ* and was the foundation-stone upon which Stela 7 had originally rested. (See pp. 103-105.) All circumstances point to this conclusion. In the first place, Stela 7 was found lying on the surface of the ground only 2 meters from this slab, presumably just where it had fallen. Again, this foundation-slab is of the same general size and shape and was found buried about the same distance below the surface as others used for this same purpose elsewhere; and finally, certain measurements on Stela 7 itself tend to confirm this conclusion.

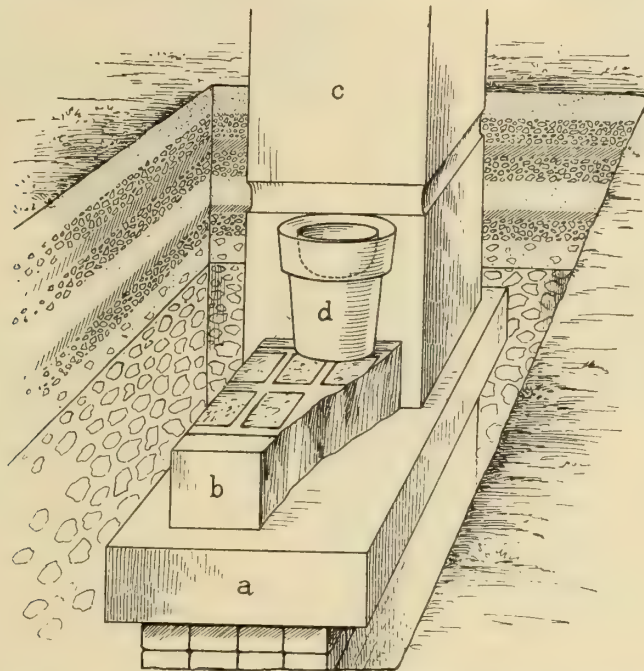


FIG. 12.—Sketch showing position of fragment of Stela 24 found in 1916, resting on foundation-stone of Stela 7: *a*, foundation-stone of Stela 7; *b*, fragment of Stela 24; *c*, Stela 7; *d*, small altar with depression in top.

Just below the sculptured panels on Stela 7 there is a shallow groove which runs clear around the monument, the bottom of which is 90 cm. above the bottom of the monument and 33 cm. below the glyph-panel. The generally accepted explanation of this is that the stone or concrete flooring of the court where this stela stood fitted into this groove and tended to lock the monument more securely to its foundation.

If this explanation is correct, the floor-level of the court where Stela 7 originally stood fell somewhere between the bottom of this groove and the bottom of the glyph-panel when the monument was upright, *i. e.*, between 90 cm. and 1.23 meters from the bottom of the monument. Returning once more to the foundation-slab under Stela 24, its top surface was found to be 1.02 meters below the present level of the ground, that is to say, the top of

this groove would have come just where the flooring of the court touched the stela. (See figure 19 for a cross-section showing these details.)

The provenance of Stela 7, the discovery of a foundation-stone just below where it was found, and finally the above measurements, leave little doubt that this monument formerly stood here and, more important still, that a fragment of Stela 24 was reused in its foundations.

Before developing this point any further, let us first examine the inscription on Stela 24. This is presented on the front and back, the former showing parts of 6 glyph-blocks (figure 13, *a*), and the latter parts of 5 (figure 13, *b*). The glyphs on the front are as clear as though they had just left the sculptor's hands, and they unmistakably record the date 9.2.10.0.0 3 Ahau 8 Cumhu. (See figure 13, *a*.)

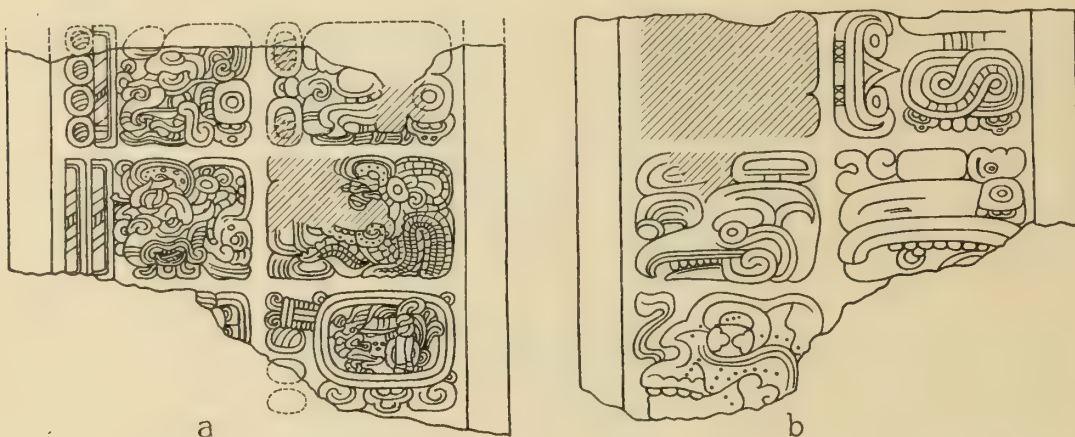


FIG. 13.—Inscription on Stela 24: *a*, front; *b*, back (only one fragment recovered).

The first glyph-block on the front records 9 cycles, the line of fracture passing through the upper part of the block. The upper dot and the upper end of the bar of the coefficient are missing, but judging from the height of the complete glyph-block just below, 18 to 19 cm., the coefficient originally recorded could have been none other than 9.

Since this fragment begins with the cycle-sign and coefficient, it is evident that the Initial Series introducing glyph occupied the space of four glyph-blocks above it, *i. e.*, A1-B2, and that including the missing parts of the cycle and katun-signs and coefficients and the plain band across the top, the stela originally extended another 49 cm. above the top of the fragment found.

The katuns follow the cycles in B3. The coefficient is clearly 2, in spite of some loss of detail and of the upper half of the upper dot. The lower dot has the same interior treatment, *i. e.*, parallel lines, as the dots of the cycle coefficient. The period glyph is also partially effaced.

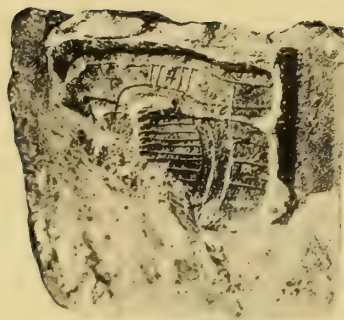
The next glyph-block, A4, is perfect, and unmistakably records 10 tuns. The upper left hand corner of the next block, B4, is effaced, but both the period glyph and coefficient are clear as 0 uinals.



a.
Stela 18.



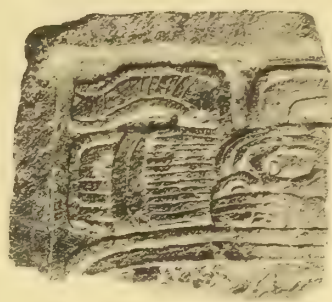
b.
Stela 20.



c.



d.



e.

Stela 21. (c) Back? (d) Side. (e) Front?



f.



g.



h.

Altar O'. (g) Front. (f and h) Sides.

The kins, A5, are all gone, except the upper right-hand corner of the period glyph; however, the day-sign in the next block, B5, is so clearly Ahau that the missing kin coefficient may be safely restored as 0.

The day-sign coefficient at first appears confusing. The lower left-hand corner of this glyph-block is missing, and with it has gone part of the coefficient. The same ornamental element seen in the day-signs on Stelæ 25, 15, and 9—of all the other stelæ the most closely related to Stela 24 both in point of time as well as in style—is also found in the upper left-hand corner of this glyph-block. The coefficient of the day-sign is below this. One dot and part of another are still preserved, and to fill out the glyph-block properly it is necessary to postulate the former existence of a third of equal size below these two, indicated in dotted line in figure 13, *a*. The upper dot, moreover, shows the same use of parallel lines in its interior decoration as do the dots in the cycle and katun coefficients above, and it is therefore evident that this coefficient must have been either 2 or 3, *i. e.*, two numerical dots with an ornamental element between or three numerical dots.

Referring to Goodman's tables, it will be found that the Initial Series number 9.2.10.0.0 leads to the terminal date 3 Ahau 8 Cumhu, and the day recorded in B5 is therefore 3 and not 2 Ahau. The Supplementary Series and the month 8 Cumhu were recorded on the next piece below, but this is still missing:

Fragment 1 missing	A1-B2 = Initial Series introducing glyph
Fragment 2	A3 = 9 cycles
Fragment 2	B3 = 2 katuns
Fragment 2	A4 = 10 tuns
Fragment 2	B4 = 0 uinals
Fragment 3 missing	A5 = (0 kins)
Fragment 2	B5 = 3 Ahau
Fragment 3 missing	(8 Cumhu)

The inscription on the back (figure 13, *b*) presents no decipherable glyphs. D3 has a well-known ending prefix and C5 is a beautifully executed death's head, having all the well-known Maya skeletal characteristics—the fleshless lower jaw, the prominent upper teeth, the truncated nose, the large bony eye-socket, here filled with what may be a realistic attempt to represent the cranial sutures,¹ and the many small spots, almost invariably associated by the Maya with death.

The very early date recorded upon Stela 24—the earliest surely deciphered at Copan, and 3 tuns earlier than the earliest yet found at Tikal, her great northern rival—makes this monument one of the most important of the whole Corpus Inscriptionum Mayarum. Very few indeed are of greater antiquity or even equal age; hence the stress here laid upon the circumstances attending its discovery.

¹The resemblance of this eye to the sign for the day Eznab is so obvious as to suggest that there may have been some connection between the two. The sign for Eznab may be a representation of the cranial sutures, particularly since these lines are wavy. See Bowditch, 1910, plate 6, Morley, 1915, figure 16, and Appendix X. This day is very rarely recorded in the inscriptions and its avoidance may have been due possibly to its resemblance to a death's-head characteristic and the consequent association of the idea of death with it, of which the Maya stood in great fear.

It was erected, as we have seen, on the third lahuntun-ending of Cycle 9, viz, 9.2.10.0.0, but where can not be established. It would seem probable, however, that it must have stood at or very near the place where it was found, namely, at Group 9, where the modern village now stands, which, as will appear later, was probably the earliest permanent settlement in the valley.

Some 128 years later, in 9.9.0.0.0, we find a piece of it, indeed the most important piece of all, since it carries the dedicatory date, was built into the foundations of Stela 7.

This practice of reusing earlier monuments in the foundations of later ones was fairly common at Copan in the Middle and Great Periods, but so far as the writer is aware, this is not only the earliest example of this practice but also the only example yet reported from the Early Period.

What is the explanation of this custom? Was it in compliance with some religious concept, or had it no other foundation than the purely utilitarian purpose of making use of old monuments which had outgrown their usefulness? Spinden believes that it may have had a ceremonial significance and is possibly another expression of the custom of placing caches of bowls, vases, etc., in the vaults or chambers under the monuments, as in the cases of Stelæ 3, 1, I, M, C, and 4, the latter, perhaps, analogous to our own custom of depositing current periodicals, coins, photographs, and the like in corner-stones.

It appears to the writer as not improbable that such reuse of their earlier monuments by the Maya may have been made for some religious purpose; in short, that such a practice was "good medicine." If, for example, the lahuntun ending in 9.2.10.0.0 had been a particularly prosperous one, in which the crops were unusually fruitful, it would not be an unnatural or illogical assumption for the primitive mind that the monument which had been erected to commemorate this particular period had partaken of its beneficent character; and further, that if such a monument were placed in the foundation of a later one, a like period of prosperity and plenty might be made to follow. In the present case, the fact that the piece of the monument used for this purpose was the one upon which the date was recorded might be interpreted as being due to deliberate selection, and thus lend color to the idea; but amid such speculations the purely utilitarian explanation should not be overlooked, namely, that by 9.9.0.0.0, Stela 24 may have outlived the purpose for which it was originally designed, and being a selected piece of stone in the first place, large as well as strong, and moreover already shaped and dressed, it was used in the foundations of Stela 7 as being convenient, suitable and available for that purpose.¹

Since this fragment of Stela 24 was buried only 128 years after it had been carved, its remarkable preservation is easily explained. The detail, at least on the Initial Series side, seems to have preserved most, if not all, of its

¹Other examples of this custom will be found elsewhere at Copan as follows: Altar J', p. 56; Altar K', p. 56; Altar X, p. 63; Altar Y, p. 66; Stela 9, p. 93; Stela 21, p. 95; Stela 22, p. 69; Altar A', p. 68; and Fragment S', p. 121.

original clearness and brilliancy, traces of the red paint with which it was originally covered still adhering in some places. The relief is uniformly 1 cm. deep, and considering the extremely early date at which it was executed is fine work. Although low and flat, it possesses strength and character and already indicates an almost perfect control of the medium, much more so, for example, than the work being done at Tikal at the same time, *i. e.*, Stela 3. The glyphs on Stela 24 have already assumed the rectangular outline which was to characterize Maya glyphic delineation throughout the Old Empire, but which did not appear at Tikal until later.

We have already seen that there is only one other monument now known at Copan which has glyphs of an earlier and less rectangular character, namely, Stela 20 (9.1.10.0.0). The fact that this irregularity of outline had disappeared at Copan by the time Stela 24 was erected, probably only 20 years later, therefore tends to authenticate on stylistic grounds the fact that Stela 20 was the earlier of these two.

Another early feature of this inscription is the lack of specialization in the essential characteristics of its period glyphs. The cycle-sign lacks the hand on the lower part of the face; the katun-sign, the oval in the upper part of the head; and the tun-sign, the fleshless lower jaw. Indeed, the only period-glyph which would appear to have developed its distinguishing characteristics as early as this is the uinal-sign, which is the full figure of a toad.

The uinal would seem to have been the first period to have acquired special characteristics. In the Leyden Plate Initial Series the uinal-sign is the only one of the five period-glyphs which has the same essential element as that by which it was recognized in later times. This lack of specialization is in itself an indubitable mark of antiquity, since it indicates that at the early date this inscription was carved the period-glyphs, with the exception of the uinal-sign, had not yet developed the special characteristics by which they were severally known later.

A close similarity in a minor detail between Stela 24 at Copan and Stela 3 at Tikal should be noted here, namely, that the day-sign cartouche in the Initial Series terminal date of each has a pair of small tassel-like protuberances, one from each of the upper corners. In the Copan glyph there is another in the lower right-hand corner as well. The presence of this minor detail—and since it is repeated nowhere else in the whole range of the Maya writing we must believe an adventitious one as well—at two such widely separated cities as Copan and Tikal argues for close intercourse within the area at a very early date, and a correspondingly early homogeneity of culture.

The question as to which of these two cities was the older will be fully presented in Chapter V, and that discussion will not be anticipated here, except to note that although Stela 24 at Copan is earlier than any date yet deciphered at Tikal, and although Stela 20 is probably still older, there are strong grounds for believing that the northern metropolis is probably the older of the two.

STELA 16.

- Provenance: Original position unknown. Placed by the Second Peabody Museum Expedition at the head of Owens's grave in the Great Plaza at the Main Structure in 1893. (See plate 6.)
- Date: 9.4.9.17.0 5 Ahau 8 Yaxkin (?) or
9.7.2.12.0 5 Ahau 8 Yaxkin (?).
- Text, (a) photograph: plate 10, *a* and *b*.
(b) drawing: plate 10, *a* and *b*.

No reference is made in any of the Peabody Museum publications to this sculptured fragment, although it is the upper part of a very early stela. Neither has it been possible to ascertain just where it was found. When first examined by the writer in 1910, it was standing at the head of Owens's grave in the Great Plaza, though obviously not *in situ* here. A sister monument, Stela 17 (see p. 90) was found on the terrace just north of the Great Plaza, a few yards west of Mound 2 (see plate 6), which suggests that Stela 16 also may have come from somewhere in this general vicinity.

The fragment preserved is 1 meter long, 63 cm. wide, and 42 cm. thick. It is sculptured with glyphs on both broad faces, the narrow sides remaining plain. On the basis of arrangement of design, therefore, it may be assigned to Class 2. Both inscriptions open with large Initial Series introducing glyphs A1-B2 and C1-D2; the variable element on the side not presenting the Initial Series is the normal form of the kin-sign.¹

The text opens with an Initial Series introducing glyph (see plate 10, *a*) in A1-B2, which is followed by an Initial Series number in A3-B5. Unfortunately almost all the carving on this side has scaled off, carrying with it the details of these glyphs. Enough remains to distinguish faint traces of the cycle coefficient in A3*a* and the katun sign in B3*b*, but not enough to decipher the date. The line of fracture runs across the tun and uinal signs; consequently, the Initial Series terminal date—if it were recorded on this side—is missing.

Happily, the back of the monument is in a better state of preservation (see plate 10, *b*). The text on this side also opens with an Initial Series introducing glyph followed by a Calendar Round date, which, so far as the writer knows, is unique throughout the entire range of the Maya inscriptions in having its month-sign precede its day-sign. As recorded, this date very clearly reads 8 Yaxkin 5 Ahau, which can hardly be other than an inversion of 5 Ahau 8 Yaxkin.

This date occurred four times in the Early Period, as follows:

9.1.17. 4.0
9.4. 9.17.0
9.7. 2.12.0
9.9.15. 7.0

¹It should be noted in this connection that the variable elements in the introducing glyphs of the Initial Series on the Leyden plate and also on Stela 23, at Santa Rita (Group 1, plate 3), and Dates 20 and 28 of the Hieroglyphic Stairway, are the same.

The first and last of these, however, may be eliminated at once, on the ground of historic and stylistic improbability, the first being as much too early as the last is too late.

Of the two remaining dates, 9.4.9.17.0 has more in its favor than 9.7.2.12.0 for the following reasons:

1. It is just 1 uinal or 20 days earlier than the end of a tun, hotun, and lahuntun in the Long Count, and
2. It is within 1 uinal or 20 days of the date of another monument here, Stela 15 (9.4.10.0.0).

On the other hand, the later value would be nearer the date of Stela 17, which is some time in Katun 6, and which on stylistic grounds this monument more closely resembles than any other. An entirely different explanation, however, is possible here, although one less likely to be correct than the preceding, since it necessitates a forced reading of the original before it becomes possible at all.

In plate 10, *b*, the glyph immediately following 5 Ahau in A₃ has a coefficient of 5 and a hand at the right side. Can this possibly signify that the preceding inverted Calendar Round date was a hotun-ending, the head between the 5 and the hand in B₃ being some unknown early form of the tun-sign?

Referring to Goodman's tables, it will be found that there are only three hotuns in the Early Period which ended on the day 5 Ahau, as follows: 9.1.10.0.0 5 Ahau 3 Tzec; 9.4.15.0.0 5 Ahau 3 Yaxkin, and 9.8.0.0.0 5 Ahau 3 Chen; and of these, the only one at all possible here is the second, which agrees with the date in A₃, except for its month coefficient, which is 3 instead of the 8 recorded.

It is barely possible, though not probable, that the bar in the month coefficient of A₃ is ornamental and not numerical, and that this date is 5 Ahau 3 Yaxkin and not 5 Ahau 8 Yaxkin, as it first appears to be. If this is true the corresponding Initial Series is almost certainly 9.4.15.0.0.

Against this reading, however, must be offset the fact that the month-coefficient certainly looks more like 8 than like 3, and also that using it as 3 gives a third hotun as the resulting date, *i. e.*, 9.14.15.0.0, which would be by nearly a century the earliest example of the record of a quarter katun yet found at Copan. Indeed, as the several monuments of the Early Period are described hereinafter, it will be seen that at first the custom seems to have been to commemorate only the lahuntuns and the katuns by the erection of stelæ, and that it was not until the very end of the Early Period that the quarter katuns were similarly commemorated.¹

Before attempting to decide, even tentatively, however, upon any of these dates, it is best to describe Stela 17, the sister monument, after which a better choice can be made.²

¹See p. 126.

²For the discussion of Stela 17, see pp. 89-93.

STELA 15.

Provenance:	Found on the mound of Stela 7 (Group 9). Now in the cabildo. (See plate 3 and figure 22, s.)
Date:	9.4.10.0.0 12 Ahau 8 Mol
Text, (a) photograph:	Morley, 1915, plate 13. Spinden, 1913, plate 23, 2.
(b) drawing:	plate 12.
References:	Morley, 1915, pp. 187, 188. Spinden, 1913, pp. 160, 163, 164, and table 1.

The vicissitudes through which Stela 15 has passed during the last three-quarters of a century well illustrate what has happened to many of the monuments of Group 9, where the modern village now stands.

When the writer first visited Copan in 1910 the two larger pieces of this monument (fragments 1 and 2) were built into the east wall of a house at the northwestern corner of the village plaza. (See figure 22, *A*, and *u*.) Information received then and in 1912 led to the discovery of a third and smaller piece (fragment 3) in 1915 (see figure 22, *r*), and during the writer's last visit additional data as to the history of this monument were secured.

Mariano Madrid, the father of Jacobo Madrid, first came to Copan in 1891, when he bought the property on the southern side of the plaza at the southwestern corner, from Anita Acevédo. (See figure 22, *G*.) At that time this property was surrounded by a stone wall, the *only one of its kind* in the village, which was still only an *aldea* or hamlet, the municipality not being organized until two years later.¹

Jacobo Madrid states that fragments 1 and 2 were built into the foundations of the stone wall along the eastern side of this property at that time. (See figure 22, *t*.) Three or four years later (1894 or 1895) his father built the house at the northwestern corner of the plaza, and in order to secure large stones for the foundations of its adobe walls he tore down this stone wall and removed these two fragments to this other house, where the writer first saw them in 1910 (see figure 22, *u*), whence they were subsequently removed to the cabildo in 1913.

But Anita Acevédo was not the original owner of the property where these fragments were first described, nor was her husband, Juan Villeda, the builder of the stone wall where they were found.

Maria Melendrez, one of the oldest inhabitants, states that Anita Acevédo bought this property from an Ana Carlos Orellano about 1865 (*i. e.*, when the informant was 16, being about 70 now) and that the stone wall was already built when she first remembers this place.

Cristina Ramirez, the oldest inhabitant of the village, has recollections of still an earlier period. She states that as a child she was accustomed to go

¹The municipality of Copan was organized on January 1, 1893, by the following men: Teodoro Destephen, Indalecio Guerra (alcalde), Emilio Cuellar (first regidor), Cristóbal Melendez (second regidor), Mariano Madrid (síndico), and J. Manuel Collar (secretario interino), Guadalupe Lopez being the first regular secretary of the municipality. Teodoro Destephen and J. Manuel Collar were not residents of Copan, but signed the organization papers, the former in his capacity as *commandante* and the latter as *secretario* of Santa Rita, under the jurisdiction of which Copan had been heretofore.


to this house to buy cheese and remembers distinctly when the stone wall in question was being built by the husband of Ana Carlos Orellano, Domingo de Aguilar. She recalls the laborers carrying the stone that went into it, but not the fragments of Stela 15 specifically, although she remembers them afterwards as having been in the wall.

When questioned as to her age at this time, she replied that she was still a little girl. If she is now 75, and her grandchildren believe she can be no less, and if she were about 10 when the wall was being built, it would make the wall date from about 1854 or, allowing a slight leeway either way, roughly from the decade 1850-1860.

However, even this does not establish the original provenance of Stela 15, and indeed it was only by the chance discovery of a third fragment of this monument in 1915 that it has been possible to establish its former position at all.

In examining the mound of Stela 7 in that year, the writer discovered a small fragment having only one glyph on it, which looked as though it might be a part of Stela 15. He had this carried over to the cabildo, where fragments 1 and 2 of this monument had already been deposited, and it was found to fit against the lower end of fragment 2. (See figure 22, r.)

This discovery was important as establishing beyond much doubt that the original provenance of Stela 15 had been the mound of Stela 7; that fragments 1 and 2 had been removed from here some time between 1850 and 1860 for use in the foundations of the stone wall above described; and finally, that because it was only a small and irregularly shaped piece, fragment 3 had been left undisturbed at the mound of Stela 7 practically *in situ*. When these three fragments were assembled they measured 1.89 meters long, 76 cm. wide, and 42 cm. thick.

The inscription covers all four sides, each side opening with an Initial Series introducing glyph. The variable element in all of these except the one above the single Initial Series number is the same,  the variable element in the other being a grotesque head. On the basis of arrangement of design, therefore, Stela 15 may be assigned to Class 3. Spinden was the first to call attention to the early character of this monument. He suggested as its probable date 9.4.10.0.0 12 Ahau 8 Mol.¹ After a close study of fragments 1, 2, and 3, the last not seen by Spinden, the writer was able to corroborate this reading.²

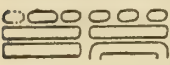
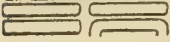
The single Initial Series opens with an introducing glyph in A1-B2 (plate 12). This is followed by 9 cycles in A3-B3 and 4 katuns in A4-B4. Here occurs the break described above, and then follows on fragment 2,

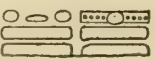
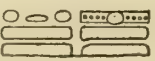
¹Spinden, 1913, pp. 160, 163, 164.




²Since Spinden's conclusions regarding the archaic character of Stela 15 were based largely upon stylistic criteria, it is significant that the date actually recorded on this monument indicates a corresponding antiquity. This is but one of the many agreements between the chronological sequence and the stylistic sequence of the monuments throughout the Maya area, an agreement so complete in fact as to prove beyond all doubt the chronological sequence of Maya art.

10 tuns in A5-B5, and 0 uinals in A6-B6. The kin-sign is recorded at B7 on fragment 3; the kin coefficient and terminal date are missing.

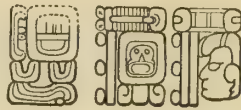
Arguing from antecedent probability in such Initial Series (*i. e.*, where the tun coefficient is either 0, 5, 10, or 15, and the uinal coefficient 0), the missing kin coefficient can hardly have been other than 0; and we may assume that a lahuntun-ending in the Long Count was probably recorded here, 9.4.10.0.0. That this assumption is correct, the writer was able to demonstrate by the discovery of a lahuntun-sign on fragment 2, thus confirming this reading.

An examination of the mound of Stela 7 in 1912 had disclosed several small fragments, one of which appeared to have the coefficients of the terminal date of Stela 15, as deciphered by Spinden, *i. e.*, 12 (Ahau)¹ 8 (Mol),  the day-sign, and the greater part of the month-sign having  been broken off. And in 1915, when the writer next visited Copan, he had this piece removed to the cabildo, where it was there found to fit exactly against the bottom of fragment 2, and was, in fact, a part of Stela 15. The front of this new piece shows the kin-sign of the Initial Series number (B7, plate 12) just below the full-figure form of the uinal, *i. e.*, the toad or frog in B6.

Curiously enough, what had been mistaken for the day and month coefficients 12 and 8 respectively of the Initial Series terminal date on the back of this fragment in 1912, on closer study in 1915 turned out to be 12 or 7 (?) 6 (?), or the coefficients of another date.  Thus the former reading, incorrect as it later proved to be,  was the means of identifying this fragment as a part of Stela 15.

The last glyph on the back of fragment 2 (F6b),  *i. e.*, on the side opposite the Initial Series, is the well-known  sign for the lahuntun, which is used only on monuments, which  record the ends of second hotuns (*i. e.*, lahuntuns) in the Long Count. Its presence here renders practically certain Spinden's reading of this Initial Series. As already suggested, Altar Q' probably records this same lahuntun-ending and may have been the altar originally associated with this stela. (See p. 62.)

One of the narrow faces of Stela 15 has the month-sign 13 Kayab (c3) following the Initial Series introducing glyph (c1-c2). It is impossible, however, to connect this with any other date in the text.

A more interesting and perhaps a better understood date occurs in D5-D6 on the same side, in which c6, D6  possibly records the Calendar Round date 8 Ahau 13 ?, the month-sign being a human head. D5 appears to be a tun-ending sign, although this identification is not certain.

Assuming that the date 8 Ahau 13 ? ended some even tun of the Early Period, it can be found from Goodman's tables that there are only six

¹Matter inclosed in parentheses does not appear in the text as preserved. Such omissions are due to one of two causes: either the missing part may have been effaced or broken off, as here, or, as in other cases, it may have been understood, *i. e.*, supplied mentally, without the necessity of actually recording it.

places where the conditions imposed by these two coefficients are fulfilled, namely:

9.0. 0.0.0	8 Ahau 13 Ceh	9.6.10.0.0	8 Ahau 13 Pax
9.3. 5.0.0	8 Ahau 13 Kankin	9.9. 2.0.0	8 Ahau 13 Zip
9.5.17.0.0	8 Ahau 13 Pop	9.9.15.0.0	8 Ahau 13 Cumhu

But D6 more closely resembles Ceh than it does any of these other month-signs, actually having the superfix of Ceh as its own superfix here (compare D6 with the forms for Ceh in Appendix X), and this Calendar Round date therefore probably stands for the full Initial Series 9.0.0.0.0 8 Ahau 13 Ceh, *i. e.*, the end of Cycle 9.

This is the second example of the month-sign being a human head. (See also the month-glyph, 8 Cumhu on Stela 25, figure 8, and p. 71.) Can it be possible that these heads are those of the deities who presided over these months? Whether so or not, this is an interesting parallel between Stelæ 25 and 15 and may foreshadow the discovery of other examples of the same kind.

When Stela 15 was erected, less than 90 years had elapsed since this important date, which must have been held in very lively memory still; at all events it appears to have been made a matter of record here.

The whole inscription on Stela 15 so far as it has been deciphered reads:

FRONT.

Fragment 1 A1-B2	Initial Series introducing glyph
A3, B3	9 cycles
A4, B4	4 katuns
Fragment 2 A5, B5	10 tuns
A6, B6	0 uinals
Fragment 3 B7	(0) kins

SIDE.

Fragment 1 C3	13 Kayab
Fragment 2 D5	"End of a tun or a hotun" (?)
Fragment 3 C6, D6	8 Ahau 13 Ceh (9.0.0.0.0)

BACK.

Fragment 2 F6b	"End of a lahuntun," probably referring to the contemporaneous date of the stela on the other side.
----------------	---

Because of the fragmentary condition of Stela 15, it is impossible to more than approximate the number of glyph-blocks which its inscription originally contained, but the three fragments preserved have upward of 40.

Stela 15 dates from the fifth lahuntun of Cycle 9, being exactly 2 katuns later than Stela 24.

STELA 17

Provenance:	Original position unknown. Found just west of Mound 2 on the low terrace north of the Great Plaza at the Main Structure. Now near Owens's grave in the Great Plaza. (See plate 6.)
Date:	9.6.0.0.0 9 Ahau 3 Uayeb (?).
Text, (a) photograph:	plate 11, a and b.
(b) drawing:	plate 11, a and b.

Only one fragment of Stela 17, the sister monument of Stela 16, has been found, and even this small piece has been reshaped for some secondary purpose. It was discovered by Morris in May 1912, at the western base of Mound 2, on the low terrace north of the Great Plaza, while he was searching for the missing parts of Stela 16. It is 63 cm. long, 38 cm. wide, and 27 cm. thick.

The fragment preserved is the upper right-hand corner of the monument as one faced it (see plate 11, *a*). In size, style, and treatment it very closely resembles Stela 16. Both are executed in the same low relief, little more than incised lines; and both have the same type of Initial Series introducing glyphs at the tops of their broad faces. The variable central element of the Initial Series introducing glyph on the back of Stela 16 is the kin or sun, the corresponding element on the front of Stela 17 being the moon. In short, a very close similarity exists between the two monuments, and on the basis of the arrangement of its design it has been assigned to Class 2.

The inscription on the front opens with an Initial Series introducing glyph in A1-B2, which was originally followed by the corresponding Initial Series number in A3-A5, all of which is now missing except the katun-sign and coefficient in B3 and part of the cycle-sign in A3.

The most important single glyph in determining the age of any Maya monument is the katun-sign and coefficient, since by means of this character alone any date can be deciphered to within 20 years of its true position at the outside. Most fortunately, in this text the katun coefficient is unusually clear as 6. (See B3, plate 11, *a*.) This glyph alone enables us to place the date of Stela 17 as falling somewhere in the katun or 20-year period from 9.6.0.0.0 to 9.7.0.0.0.

Unfortunately, the inscription on the back has almost entirely disappeared, and except for the Initial Series introducing glyph in c1-D2 no other signs can be deciphered.

Although it is impossible to go beyond this point with certainty because the rest of the inscription is missing, there are several factors which make it probable that Stela 17 dates from 9.6.0.0.0.

As explained in Appendix VII, the overwhelming majority of Maya stelæ were erected, or at least formally dedicated, at the expiration of hotuns, lahuntuns, or katuns in the Long Count. Because of this fact, therefore, we are justified in assuming that the Initial Series of Stela 17 recorded one of the four following dates in Katun 6 out of the 7,200 dates, which must be admitted as possibilities without this assumption:¹

9.6. 0.0.0	9 Ahau	3 Uayeb
9.6. 5.0.0	2 Ahau	18 Kayab
9.6.10.0.0	8 Ahau	13 Pax
9.6.15.0.0	1 Ahau	8 Muan

In the very early period from which this monument dates, the custom of erecting a stela at the expiration of every hotun does not appear to have prevailed. Possibly at this early date the priests, or those in whose hands

¹Since there are 7,200 days in any given katun, there are 7,200 possible dates here.

the matter rested, may not have felt equal to such a task. At all events, it is not until 9.9.5.0.0 at Copan (45 to 60 years later than Stela 17) that the attempt first appears to have been made to mark the end of every hotun, and even after this the sequence is incomplete. It is also explained in Appendix VII that the second and fourth hotuns were frequently commemorated by the erection of stelæ when the first and third were not, because the former coincided with lahuntun and katun-endings respectively, and were consequently of greater importance than the latter.

This seems to have been particularly true of Copan, since none of the four earliest stelæ here, which have been surely deciphered, Stelæ 24, 15, 9, and 7, date from a first or a third hotun. On the contrary, Stelæ 24, 15, and 9 date from second hotuns (lahuntuns), and Stela 7 from a fourth hotun (a katun). Moreover, in the cases of the three doubtfully deciphered monuments previously encountered, Altar Q' and Stelæ 20 and 25, the best readings for these are also lahuntuns, 9.4.10.0.0, 9.1.10.0.0, and 9.4.10.0.0 respectively; indeed, the lahuntun-sign actually appears in the first. (See figure 6, A3b.) Therefore, *a priori*, it is probable, that Stela 17 dates from either 9.6.0.0.0 or 9.6.10.0.0 rather than from the first and third hotuns of Katun 6.

But the second one of these two dates, 9.6.10.0.0, is surely recorded elsewhere here at Copan, namely, on Stela 9; and rather than accept the conclusion that this particular hotun was commemorated by the erection of two stelæ, when so many of the earlier hotuns are known to have had none at all, the writer prefers to accept the other reading, 9.6.0.0.0, as the date of this monument.

Moreover, this latter date has two other minor points in its favor. It is not only a katun-ending, but it is also within 102 days of the best date for Altar X, with which Stela 17 may have been formerly associated.

In spite of its fragmentary condition, this monument may be surely assigned to Katun 6; and because of the fact that the great majority of all Maya stelæ record hotun-endings, it may probably be assigned to one of the four hotuns given above, with the first as the best possibility.

We are now in possession of sufficient data to resume the consideration of the relative ages of Altars X and Y and Stelæ 16 and 17, the possible dates for which follow:

ALTAR X	ALTAR Y	STELA 16	STELA 17
9.3. 6.17.18	9.4. 8.12.6	9.4.9.17.0	9.6.0.0.0
9.5.19.12.18	9.7. 1. 7.6	9.7.2.12.0	to
9.8.12. 7.18	9.9.14. 2.6		9.7.0.0.0

It is unfortunate that the exact date of Stela 17 is unknown, since it may have stood in the same close relation to Altar X as Stela 16 appears to have stood in relation to Altar Y. Indeed, the dates of the two latter monuments, no matter which set of readings be selected, are within two years of each other.

If such a relationship did exist between Stela 17 and Altar X, it is highly probable that the date of Altar X is the second value given above, namely, 9.5.19.12.18, since this value would be within 6 uinals, *i. e.*, 102 days of the best date for Stela 17, and can not be farther off than 20 years, whereas the nearest that the first or third values above can be to the nearest possible readings of Stela 17 is 53 years before or 52 years after respectively.

Again, on stylistic grounds, 9.5.19.12.18 is a better date for Altar X than either 9.3.6.17.18 or 9.8.12.7.18. In short, all factors considered, 9.5.19.12.18 seems to be the best date for Altar X, and 9.6.0.0.0 the best date for Stela 17. And finally, because these two dates are so close together, it is probable that Altar X was formerly associated with Stela 17.

The real crux of this question is in regard to the dates of Stela 16 and Altar Y, that is, which of the two sets of values given above is to be associated with them, 9.4.9.17.0 and 9.4.8.12.6 or 9.7.2.12.0 and 9.7.1.7.6; and since either set appears to be equally possible, chronologically considered, it is necessary to turn to the stylistic criteria present in order to determine the relative sequence of these four monuments.

Unfortunately, there is little help coming from this direction either, as between Altars X and Y there appears to be but little choice. The glyphs on Y are perhaps a shade better than those on X, but, to offset this, the human figures on X seem slightly more naturalistic than those on Y. Indeed, on stylistic grounds it is all but impossible to say which is the earlier of the two.

As between Stelæ 16 and 17 the choice is little better, but here we have another avenue of approach. Since the date of Stela 17 is fixed certainly to Katun 6, and probably to 9.6.0.0.0, the question is to determine whether Stela 16 is earlier or later than this date by means of a comparison of its style with the styles of the next earlier and later monuments in the sequence. The stela next earlier than Stela 17 is Stela 15 (9.4.10.0.0), and the one next later, Stela 9 (9.6.10.0.0); and our next step, therefore, is to compare the style of Stela 16 with the styles of these two monuments.

The Initial Series introducing glyph of Stela 16 is more like that of Stela 9 than that of Stela 15, and in general its closest stylistic affinities may be said to be later rather than earlier, *i. e.*, with Stela 9 rather than with Stela 15, and since the date of Stela 17 can be only 10 years earlier than the date of Stela 9 at the outside, and may indeed even be the same, it seems probable, all things considered, that the later date, *i. e.*, 9.7.2.12.0, is the better one of the two for Stela 16. It should be remembered, however, that the earlier date is almost equally as good, and the sequence given below is by no means certain:

Altar X	9.5.19.12.18
Stela 17	9.6. 0. 0. 0
Altar Y	9.7. 1. 2. 6
Stela 16	9.7. 2.12. 0

All these monuments except Altar X were found at the Main Structure, and all but Stela 16 were in positions clearly indicating secondary usage.

While the point escapes definite proof at this time, it seems not improbable that Altar X may formerly have been associated with Stela 17, and Altar Y with Stela 16, and finally, that the two former may possibly have antedated the two latter.

STELA 9.

- Provenance: Original position unknown. Found in the modern cemetery (Group 10) about 1 kilometer southwest of the village (Group 9), serving as one of the two stones which had supported Stela 8. Destroyed in 1912. (See plate 3.)
- Date: 9.6.10.0.0 8 Ahau 13 Pax.
- Text, (a) photograph: Maudslay, 1889-1902, vol. 1, plate 109.
Spinden, 1913, plate 20, 5.
- (b) drawing: Maudslay, 1889-1902, vol 1, plate 110.
Morley, 1915, plate 8, B.
- References: Bowditch, 1901a, pp. 136, 137.
Bowditch, 1910, p. 101 and table 29.
Gordon, 1896, p. 38.
Maudslay, 1889-1902, vol 1 of text, p. 68.
Morley, 1910a, pp. 196, 198, 199, 204.
Morley, 1915, pp. 171-173.
Spinden, 1913, p. 160 and table 1.

Stela 9 was found lying prostrate in the modern cemetery about 1 kilometer southwest of the village, where, according to Gordon (1896, p. 38), it had been reused in the foundations of Stela 8. Although obviously not *in situ* in this position, it seems safe to assume that it had originally stood nearby. It was intact in 1910, when the writer first visited Copan, but when Spinden was there two years later he found that, together with Stela 8, it had been broken up to form the foundation of an adobe wall then in course of construction around the cemetery.¹ This unpardonable act of vandalism, although greatly to be lamented, is not irreparable, since excellent casts exist of both the destroyed monuments. The writer, however, regards himself as particularly fortunate in having been able to study the original before its destruction.

Stela 9 was 2.44 meters long, 67 cm. wide, and 39 cm. thick. Maudslay says that all four sides had originally been sculptured, but that the carving on the fourth side was almost entirely destroyed.² Spinden believes all four sides were sculptured, and that the effaced side, which has never been reproduced, possibly presented a full-length human figure front view, like the one on Stela 18. (See p. 97.)

The writer, on the other hand, believes all four sides were originally sculptured, with glyphs like Stela 15, the style of which it very closely resembles, and on the basis of this arrangement of the design it may be assigned to Class 3.

The inscription opens with an Initial Series on one of its broad faces. This is unusually clear for such an archaic text, the numerals all being in the

¹Spinden, 1913, p. 160, footnote 1.

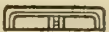
²Maudslay, 1889-1902, vol. 1 of text, p. 68.

bar-and-dot notation. It unmistakably records the date 9.6.10.0.0 8 Ahau 13 Pax, as follows:

A1B2	Initial Series introducing glyph
A3	9 cycles
B3	6 katuns
A4	10 tuns
B4	0 uinals
A5	0 kins
B5	8 Ahau
B8	13 Pax

A10 may be the hotun glyph; and the rest of the text shows other familiar signs, although of unknown meaning. The tops of both of the narrow faces are destroyed, and it is now difficult to say whether Initial Series introducing glyphs had originally stood here or not. Judging from what is left of the top glyph (D2) on one side, they had not stood here.¹

Assuming that the effaced side (the broad side opposite the Initial Series) opened with an Initial Series introducing glyph, the number of glyph-blocks originally carved on this monument was $19 + 19 + 22 + 22 = 82$, each introducing glyph occupying the space of four glyph-blocks.

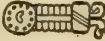

Stela 9 is exactly 2 katuns later than Stela 15, which it closely resembled, and commemorated the seventh lahuntun of Cycle 9. The relief, though very low, is elaborately executed, the glyphs showing a wealth of minute detail scarcely equaled, even in the Middle and Great Periods. This complexity appears especially in the treatment of the numerical bars, all of which present interior decoration and have square corners, thus:  In later times the bar is left undecorated, the corners are rounded, and the whole element is made narrower.

As already pointed out, Stela 9 is very similar in style to Stela 15. Indeed, both appear to have been products of the same school, possibly indeed of the same hand, although the latter is hardly likely, since an interval of 40 years separated the two monuments.

Both are of about the same width and thickness, Stela 9 being 69 cm. wide and 39 cm. thick, while Stela 15 is 76 cm. wide and 42 cm. thick. Stela 9 is about 2.5 to 3 meters long and the fragments of Stela 15 preserved are 1.89 meters long. To this latter measurement, however, must be added something to compensate for the missing bottom-piece, probably at least half a meter.

In style the two are perhaps even more closely connected, glyphic details in particular being very similar. Thus, for example, the proportions of the different elements of the Initial Series introducing glyphs on the back and sides of Stela 15 are the same as those in the one on Stela 9, the comb-like lateral appendages in the former being almost identical with the same elements in the latter. Even the variable elements in the Initial Series

¹In Maudslay, 1889-1902, vol. 1, plate 110, c, enough remains of D2 to show that it had never been an Initial Series introducing glyph. Had it been, it is probable that it would have occupied the same space as the Initial Series introducing glyph on the front, namely, A1-B2. That this was not the case on this side, D2 clearly indicates.

introducing glyphs on the two fronts appear to have been the same grotesque head.¹ Again, the element preceding the day-sign of the Initial Series terminal date in B5 on Stela 9,  is almost exactly the same as the element  preceding the day-sign of a date in C6, D6 on Stela 15.

Finally, in treatment, *i. e.*, having all four sides inscribed with glyphs (Class 3), the two monuments are identical. All these close similarities can not be the result of chance and are to be explained only on the grounds that both monuments date from the same general period and are the work of the same school, and possibly, as suggested, even of the same hand.

STELA 21.

Provenance:	Original position unknown. Found in the center of the mound at the southeastern corner of the village plaza (Group 9). Now in the cabildo. (See plate 3 and figure 22, <i>k</i>).
Date:	9.6.0.0.0 9 Ahau 3 Uayeb to 9.7.0.0.0 7 Ahau 3 Kan-kin.
Text, (<i>a</i>) photograph:	plate 9, <i>c, d, e.</i>
(<i>b</i>) drawing:	figure 14.

While the writer was at Copan in March 1916, the villagers were demolishing the mound at the southeastern corner of the village plaza, on top of which Altar S was found (see p. 226), in order to secure paving-stones for the streets. During the course of this work a fragment of an archaic stela was found buried in the hearting of the mound, to which the number 21 was given. (See figure 22, *k*.) This fragment measures 32 cm. high, 37 cm. wide, and 35 cm. thick. From the subject-matter presented on its three sculptured faces it is possible to estimate its original width as having been 74 cm. It is part of the top of an archaic stela which was originally sculptured on four sides with glyphs like Stelæ 20, 15, and 9 (see plate 9, *c, d, e*, and figure 14) and on the basis of the arrangement of the design, therefore, it

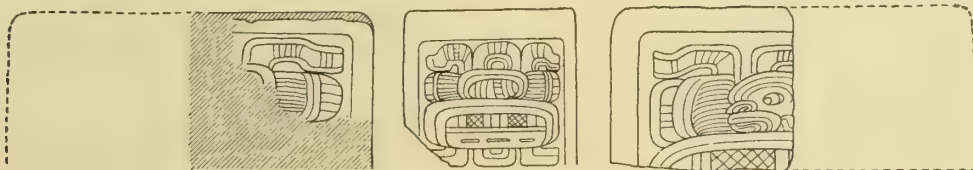


FIG. 14.—Inscription on front, back, and one side of Stela 21.

may be assigned to Class 3. At some later time it had been broken up into pieces, and the only fragment recovered shows that it had been used again as a building-block; in the reshaping necessary for this purpose, the glyph or glyphs on one side and part of those on the front and back were broken off.²

Three Initial Series introducing glyphs, two of which are not even complete, are all that is now preserved of the inscription. (See figure 14.)

¹This element on Stela 15 is partially effaced.

²Since there is an Initial Series introducing glyph on the preserved narrow face as well as upon the front and back, it is practically certain that there must have been one on the destroyed narrow face also, as in the case of Stelæ 15 and 9.

In the reshaping process about half of the Initial Series introducing glyphs on both the front and the back were destroyed. That on the preserved side is practically complete.

The variable element in the Initial Series introducing glyph on one of the broad faces is unmistakably the head of God C of the Schellhas classification of Maya deities.¹ In the Initial Series introducing glyph on the narrow face this element appears to be rather more of a filling character, like the ones on the three non-Initial Series sides of Stela 15.

As the period glyphs are all missing, it is impossible to date this stela exactly, although approximate dating by comparison of the stylistic criteria with those of other archaic stelæ is practicable.

In arrangement Stela 21 most closely resembles Stelæ 20, 15, and 9, having glyphs on all four of its sides. Stylistically its closest resemblances are with Stelæ 9, 16, 17, and 24. All seven of these monuments are of about the same size:

	Stela 21.	Stela 20.	Stela 15.	Stela 9.	Stela 16.	Stela 17.	Stela 24.
Width.	<i>cm.</i> 74	<i>cm.</i> 53	<i>cm.</i> 76	<i>cm.</i> 69	<i>cm.</i> 65	<i>cm.</i> 53	<i>cm.</i> 73
Thickness. . . .	35	40	42	39	42	27	29

The relief on Stela 21 is low and flat (about 6 mm. high), although well executed. Traces of red paint still adhere in a few places. Since two of its three closest affinities on stylistic grounds are definitely referable to the katun from 9.6.0.0.0 to 9.7.0.0.0, it seems probable that it also may date from about the same period.

This clearly established case of secondary usage in ancient times suggests that other archaic stelæ may have suffered a similar fate, which would satisfactorily explain some of the existing lacunæ in the sequence of the dated monuments. (See pp. 123, 125 for a further discussion of this point.

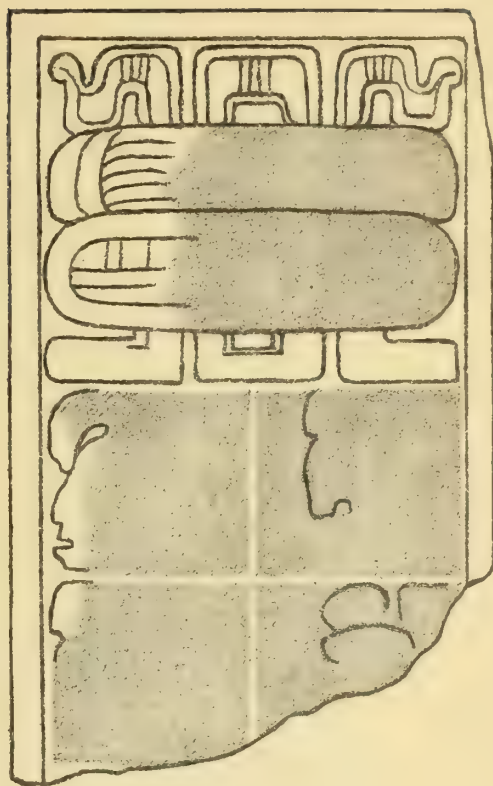
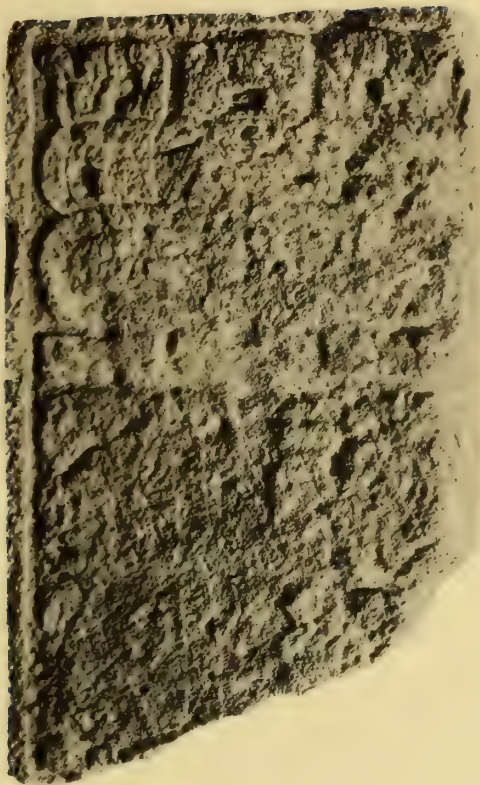
STELA 18.

Provenance:	Found on the mound of Stela 7 (Group 9). Now part of a wall behind the house of Domingo Hernández in the southwestern quarter of the village. (See plate 3 and figure 22, <i>a'</i> .)
Date:	9.7.0.0.0 7 Ahau 3 Kankin (?).
Text, (<i>a</i>) photograph:	plate 9, <i>a</i> .
(<i>b</i>) drawing:	figure 15.
Reference:	Spinden, 1913, p. 159, footnote 1, and table 1. ²

Stela 18 was found by Spinden in 1912, with Stela 20 and Altar Q', in a wall behind the house of Domingo Hernández, in the southwestern quarter of the village. (See plate 3 and figure 22, *a'*.) At that time he incorrectly

¹Schellhas, 1904, p. 19.

²Spinden refers to Stela 18 as Stela 16 in this work. In the nomenclature followed here, and since adopted by Spinden, this monument is renamed Stela 18.



a



b

Stela 16. (a)Front, (b) back. Drawn from the original.

grouped the four fragments together, calling all parts of the same monument Stela 16. (See p. 60.) As previously stated, a study of these four fragments revealed the fact that instead of being parts of one and the same monument, they are divided among three monuments—two stelæ (18 and 20) and one altar (Q').

The single fragment of Stela 18 preserved is 69 cm. long, 67 cm. wide, and 43 cm. thick. The front was sculptured with a human figure—the earliest example of the front presentation of the human form yet found at Copan,¹ and the back and sides with glyphs. On the basis of this new arrangement of the design, therefore, Stela 18 has been assigned to a new class, 4.

This fragment came from near the top of the monument, although, as will appear presently, the top itself, a piece about half a meter long, is still missing, the upper edge of the piece recovered being about half a meter below the former top of the stela.

Spinden, to whom the discovery of this important monument is due, has prepared the following well-considered description of it for use here:

“Stela 18 is the designation given to a fragment that now lies under the eaves of an inside porch or workshop of a house in Copan village. The house belongs to Antonio Guerra² and is situated on the south side of the street that runs west from the southwest corner of the plaza.


“The realistic design shows a grotesque head-dress similar to those worn by human figures on other Copan monuments. The sculpture is in very low, flat relief and is so badly battered that all the details can not be made out. The grotesque face is evidently intended for a jaguar and is decorated with small circles. The round eyes have the lids half closed and under these lids is a design very like the Venus symbol. The top of the open mouth is at the bottom of the sculptured block and one may see the two large canine teeth between which are four incisor teeth. What may be part of the curve of the usual spiral fang appears at each side of the mouth. The nose is rather unusual in shape, but at the top of it is the characteristic divided scroll. The design above this jaguar head may, perhaps, be regarded as its head-dress. In the center is a heart-shaped object, from the sides of which issue more or less flame-shaped scrolls. The design as a whole shows general similarity in assemblage of details to the head-dresses on Stelæ E, 7, P, and 2, although simpler than any of them. For purposes of comparison the head-dress on Stela 2 may best be used, since it also consists of a jaguar face with a heart-shaped object above. To be sure, this heart-shaped object is modified by a grotesque face at the bottom and an open hand at the top, but the fundamental likeness is there. The lateral ornaments of Stela 2 also recall those on Stela 18. Other details on Stela 2 are in addition on the new monument.

“It is certain that we have in this fragment the earliest example with a human figure so far described at Copan. It is a delicate question whether it is earlier or later than Stela 15, which has hieroglyphs on all four sides. The earliest dated

¹The small figures presented on the long sides of Altars X and Y are possibly earlier, but they are much smaller and in profile and also the archaic statues found under them in the foundations of Stelæ 5 and 4, figure 67, *a* and *b*, respectively.

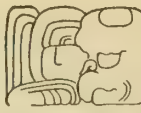
²When Spinden first visited Copan (1912) this house was in the possession of Antonio Guerra. It subsequently passed into the hands of Domingo Hernández, as already noted, p. 60.

monument previously known with a human figure is Stela 7 (9.9.0.0.0). The evidence of a human figure on Stela 18 makes it practically certain that a human figure once existed on the unmolded side of Stela 9,¹ and it may be regarded as established that full-length human sculptures in stone were known at Copan in Katun 4, and that they were probably very similar, in details represented, to those carved a hundred years later."

Most unfortunately the text on the single fragment recovered is in poor condition. As one faces the monument, the left side has an Initial Series introducing glyph, although only its bottom part is preserved. |  | Owing to the diagonal direction of the line of fracture, the corresponding glyphs on the back and right side are on the top fragment, now missing. That Initial Series introducing glyphs were formerly present, however, seems certain. Indeed, on the back the Initial Series number itself is partially preserved. (See plate 9, *a*, and figure 15.)

There seems to have been recorded, therefore, on the back of Stela 18, an Initial Series, the introducing glyph of which is now missing. Two heads appear indistinctly in A3, figure 15, the first a human type, the second grotesque.

These doubtless record 9 cycles. The entire destruction of the katun sign and coefficient in B3 is a very serious loss indeed, since it considerably increases the range of the possible readings.

The coefficient of the tun sign in A4a is  the clearest glyph in the entire inscription; and although its form is irregular, it can hardly be other than 0, 5, 10, or 15, on the grounds of antecedent probability, *i. e.*, corresponding to some hotun-ending. However, this identification appears to rest on a somewhat firmer foundation than that of antecedent probability alone, as the following will tend to show, although in order to make the point clear a somewhat lengthy digression is necessary.

In figure 16 is shown part of the inscription from the Temple of the Cross at Palenque.² At D3-C5 is recorded "4 Ahau 8 Cumhu, End of Cycle 13," and immediately following this in D5-C6 is a Secondary Series of 1.9.2. Following after several intermediate and probably non-calendric glyphs (not shown in figure 16) the date 13 Ik ? Mol is recorded at c9, D9, the month coefficient D9a being something like the tun coefficient on Stela 18. Compare A4a, figure 15, with D9a, figure 16.

Performing the calculations indicated here, it will be found that if 1.9.2 is counted forward from 4 Ahau 8 Cumhu, the date reached will be 13 Ik 0 Chen, the day of which is recorded in c9. Passing over the month in D9 for the moment, let us continue the inspection of the text.

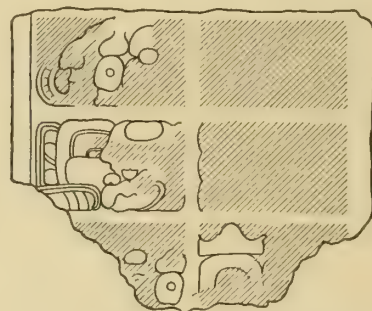


FIG. 15.—Inscription on back of Stela 18.

¹The writer's dissent with this view has already been noted. See p. 93.

²For the sake of brevity certain intermediate glyphs—probably of a non-calendric nature—have been omitted. The glyph designations in figure 16, however, correspond with those in the complete text, for a reproduction of which see Maudslay, 1889-1902, vol. IV, plates 73-77.

Following after seven intermediate glyphs, there is recorded in D13-C15 a distance number of 1.18.3.12.0, and after five more glyphs the date 9 Ik 15 Ceh at E1, F1.

If 1.18.3.12.0 be counted forward from 13 Ik 0 Chen, the terminal date reached in the first calculation, the date reached will be 9 Ik 15 Ceh, which is recorded in E1, F1. It therefore seems certain that with the possible exception of the month-sign of the second date, *i. e.*, ? Mol in D9, this text is correct, the calculations agreeing with the glyphs recorded.

Let us next examine D9. Since the day-sign in C9 is very clearly Ik, the month coefficient in D9a must be either 0, 5, 10, or 15, which reduces the possible meaning of 9a to one of these four numerals. Now, although the month-sign recorded is Mol, and the month-sign as indicated by the calculations should be Chen, the month coefficient itself can only be 0. For if 1.9.2 is counted forward from 4 Ahau 8 Cumhu or 1.18.3.12.0 is counted backward from 9 Ik 15 Ceh, the date reached in either case will be 9 Ik 0 Chen. It therefore seems certain that D9a is to be identified as 0, the month to which it is attached being incorrectly given as Mol instead of Chen. Mol was the month immediately preceding Chen, and this may have given rise to the error in the month-sign here.

But the resemblance between D9a and the tun coefficient of Stela 18 in A4a, figure 15, has already been pointed out, and on the basis of this close similarity we are probably justified in identifying A4a as a sign for 0.

This identification, moreover, does not rest on this one apparently corroboratory passage alone. In figure 17, a, is shown a Calendar Round date from one of the piers in the western court of the Palace Group at Palenque.¹ This is clearly 13 Manik ? Yaxkin, the place of the month coefficient being occupied by the same sign as those in A4a, figure 15, and D9a in figure 16. Now, Manik can have only four possible month coefficients, 0, 5, 10, and 15. Therefore, because of this fact, and because of the resemblance just noted, it seems reasonably safe to conclude that the

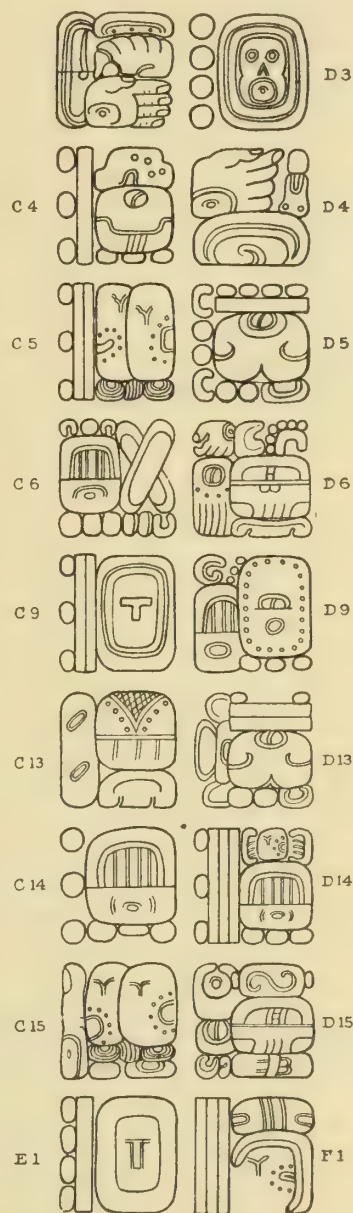


FIG. 16.—Parts of inscription (columns C and D) on left slab of tablet in the Temple of the Cross at Palenque.

¹See Maudslay, 1889-1902, vol. IV, plate 29, No. 7, G1, and vol. IV of text, page 16.

month coefficient in figure 17, *a*, is 0, even though calculations to prove it are wanting. The most that can be offered in corroboration of this second case is that one of the places where 13 Manik 0 Yaxkin occurred in the Long Count was 9.12.11.2.7, and there is another date at Palenque, an Initial Series, which records 9.12.6.5.8¹ 3 Lamat 6 Zac, which is within 5 years of 9.12.11.2.7.

A third occurrence of this unusual form for 0 is shown in figure 17, *b*, a Calendar Round date from Lintel 9 at Yaxchilan.² This is the date 1 Eb ? Yaxkin. Now, Eb can only have 0, 5, 10, or 15 for its month coefficients, and therefore one of these values must be substituted for the month coefficient in figure 17, *b*. But this sign is like the other three month coefficients just described, and we are therefore probably justified in identifying it also as 0. Unfortunately there is again no calculation by means of which this reading can be verified.

A fourth possible occurrence of this form for 0 is shown in figure 17, *c*, which is the Initial Series terminal date on the Leyden Plate.³ This Initial Series records the date 8.14.3.1.12 1 Eb 0 Yaxkin, all of which is perfectly clear except the month coefficient. While the bar attached to the month-sign may be the month coefficient 5 (one of the four values possible here, *i. e.*, 0, 5, 10, or 15), the writer prefers to regard the unusual element as the month coefficient, as the calculations show that 0 and not 5 is required here. If this character is turned on either end, it looks not unlike

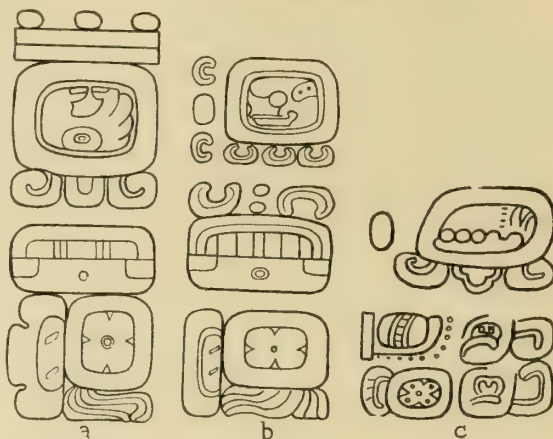


FIG. 17.—Parts of inscriptions on: *a*, pier in western court of the Palace Group at Palenque; *b*, Lintel 9 at Yaxchilan; *c*, Leyden Plate.

¹Maudslay, 1889-1902, vol. iv, plate 78. This latter date is recorded on a fragment of a sculptured slab, possibly a stela, which was found on the slope of the pyramid of the Temple of the Foliated Cross at Palenque.

Although the Initial Series introducing glyph, the cycle-sign and coefficient, and katun-sign and coefficient are missing, the writer was able to decipher this Initial Series as 9.12.6.5.8 3 Lamat 6 Zac, which agrees with the day of the terminal date as recorded. There is a Secondary Series of 1.10.1, which is counted backward from the Initial Series terminal date to reach the date 1 Manik 10 Pop also recorded.

The whole inscription seems to have read:

9.12.6. 5.8	3 Lamat 6 Zac
1.10.1	Backward
9.12.4.13.7	1 Manik 10 Pop

This is recorded as follows:

Fragment 1 missing A1-B2 Initial Series introducing glyph

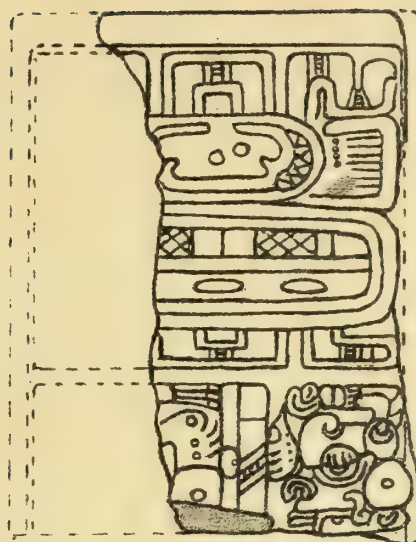
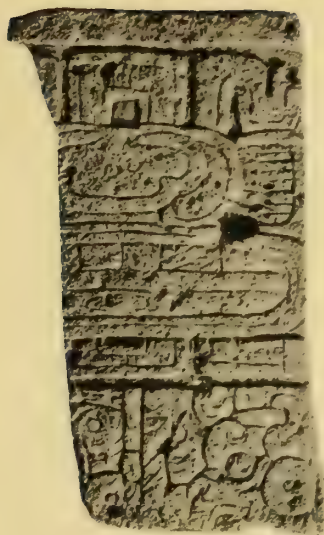
1 missing A3	9 cycles
1 missing B3	12 katuns
2 A4	6 tuns
2 B4	5 uinals

Fragment 2	A5	8 kins
	B5	3 Lamat (6 Zac)
	A9	1 kin, 10 uinals
	B9	1 tun
	A10	1 Manik
	B10	10 Pop

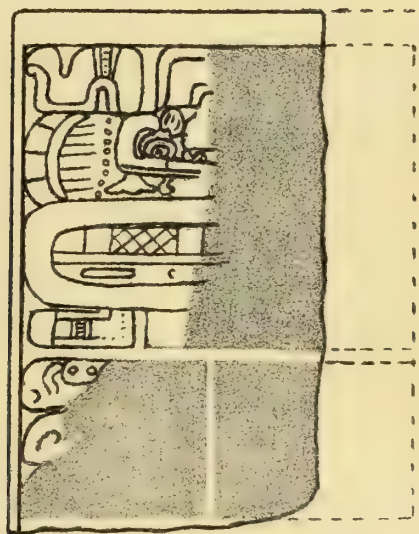
The only irregular feature of this text is the omission of the month of the Initial Series terminal date, *i. e.*, 6 Zac.

²Maler, 1903, plate 53.

³See figure 65 and Holden, 1881, figure 52, and Morley, 1915, figure 75, A.



a








b

Stela 17. (a)Front, (b) back. Drawn from the original.

the form for 0 here under consideration, and, as pointed out, is the value demanded by the Initial Series number actually recorded.¹

Even disregarding this last doubtful example, the writer believes sufficient evidence has been presented to show that the tun coefficient in A4a, figure 15, is probably 0; and further, that it is probably the normal form of the tun sign, though why this should have been chosen to stand for 0 in these particular cases is unknown.

Returning once more to the consideration of our text (Stela 18), the next glyph after the tun sign and coefficient, *i. e.*, B4 (see plate 9, a, and figure 15), is badly effaced. Enough remains of the coefficient, however (B4a), to show that it had almost certainly been 0, the outline  being that of the usual sign for 0. The kin coefficient in A5 is entirely  effaced.

The day  of the Initial Series terminal date  is probably recorded at 5Ba.  At first sight the coefficient appears to be 6, but a very careful examination of the original revealed the fact that formerly there appears to have been two other dots, one on each side of the central one, and that this coefficient may therefore have been 7 or even 8, all three possibilities having to be reckoned with.

Antecedent probability, we have seen, probably justifies the postulate that a katun, lahuntun, or at least a hotun-ending was recorded by this Initial Series. That this was a general practice, moreover, is explained in Appendix VII and has been exemplified already in the cases of Stelæ 24, 15, and 9, and probably also in the cases of Stelæ 20, 25, and 17, and we are therefore justified in accepting it as our first postulate. Again, as shown above, there are excellent reasons for believing that A4a, the tun coefficient, is 0, which would make the period-ending here recorded a katun-ending, which we will make our second postulate, thereby restricting the possible dates under our first postulate to katun-endings only. That the coefficient of the day-sign in B5a is surely 6, 7, or 8, will be our third postulate; and finally, on stylistic grounds, Spinden has shown that Stela 18 must be earlier than Stela 7 (9.9.0.0.0), which will be our fourth and last postulate.

An examination of Goodman's tables discloses that there are only three places in the Early Period where the conditions imposed by these four postulates are fulfilled, namely:

9.0.0.0.0	8 Ahau 13 Ceh
9.1.0.0.0	6 Ahau 13 Yaxkin
9.7.0.0.0	7 Ahau 3 Kankin

Unfortunately there is nothing further in the text as it has come down to us—the most hopelessly effaced of all the Copan stelæ—to aid further in its decipherment, and we are forced to fall back upon the stylistic criteria and historical probability to decipher its date even approximately.

¹It is interesting to note in these three examples that the month having this unusual sign for 0 is Yaxkin. Since there are some grounds for believing that the Maya year may have begun with this month at one time, the three days recorded in figure 17 would then have been Maya New Year Days.

Historically considered, the first two values can probably be eliminated at the outset. The earliest surely deciphered date at Copan is 50 years after the first and 30 years after the second. And even if the reading suggested for Stela 20, 9.1.10.0.0, be accepted as correct, both of these readings still antedate it.

Stylistically considered, the last reading is very much preferable to the other two. If 9.7.0.0.0 is the correct reading for this Initial Series, it makes much less of a gap between Stela 18 and the next stela in Class 4, *i. e.*, Stela 7, than if either of the other two are correct, *i. e.*, 40 years as compared with 180 and 160 years respectively.

This may seem a minor point, but where the development of art unfolded as rapidly as it did at Copan, 180 or even 160 years is too much time to have separated Stelæ 18 and 7. Furthermore, once having developed this new type of stela (Class 4) with a human figure on its front, it seems more than likely that the ancient sculptors would not have allowed 160 or 180 years to go by before attempting it again; indeed, even 40 years would appear to have been a long period to have waited.

Finally, chronologically considered, Stela 18 fits in much better with the other stelæ of the Early Period at 9.7.0.0.0 than at 9.0.0.0.0 or 9.1.0.0.0, and in conclusion, in want of further evidence, the writer has accepted 9.7.0.0.0 as the date most likely to be recorded here.

Since Stela 18 is probably the earliest stela upon which the human form was represented at Copan, it is unfortunate that it is in such a fragmentary condition as to prevent certain dating; but even so, the reading suggested may probably be accepted as approximately correct, and possibly, actually so.

STELA 7.

- Provenance: Found fallen above its own foundations at Group 9.
Now in the cabildo. (See plate 3 and figures 18, *b*, 19, and 22, *o*.)
- Date: 9.9.0.0.0 3 Ahau 3 Zotz.
- Text, (*a*) photograph: plate 13.
Spinden, 1913, plate 18, 1 (front only).
- (*b*) drawing: plate 13.
Maudslay, 1889-1902, vol. 1, plate 108.
- References: Gordon, 1896, p. 38.
Maudslay, 1889-1902, vol. 1 of text, pp. 16, 67.
Spinden, 1913, pp. 159, 160, 164, and table 1.

Stela 7, broken and badly mutilated, now lies in the cabildo, having been removed thither from the yard of the house of Clementino Lopez at the southwest corner of the village plaza in 1917. (See figure 22, *o*.) Maudslay describes it as "a broken and defaced monolith lying in the scrub about 50 yards to the west of the village";¹ and Gordon says he found it lying "in the bush to the west of the modern village, . . . fallen and broken".² Maudslay says again that it was in "Copan Village, west of Altar U."³ (See also plate 3.)

¹Maudslay, 1889-1902, vol. 1 of text, p. 16.

²See Gordon, 1896, p. 38.

³See Maudslay, 1889-1902, vol. 1 of text, p. 67.

Maria Melendrez gives the following account of the breaking of this monument. In the spring of 1874 a Colonel Vicente Solis came to the village from Santa Rosa, the capital of the Department of Copan, with troops, pursuing some political malefactors who were fleeing toward the Guatemalan frontier. While at the village he tried to move Stela 7 from where it lay in the bush to the plaza for re-erection, but his men succeeded only in dragging it a few meters before it broke in two and it was left in the bush where it was. Clementino Lopez later acquired this property, and it was under the back portal of his house that the writer first saw this stela in 1910.

The original provenance of Stela 7, however, has been established by the discovery of the foundation-stone (and the chamber underneath) upon which this monument rested. This important discovery has already received some attention in connection with the description of Stela 24 (pp. 78-80), and its consideration will be resumed here.

The mound of Stela 7 is about 50 meters southwest of the southwestern corner of the village plaza (see figure 22, *F*). By far the greater part of it lies in the property of Clementino Lopez (see figure 22), but the northwest corner is on the lot of Domingo Hernández and the northeast corner on the lot of Florencio Lemos. It is 27 meters long north and south, 17 meters wide east and west, and 70 cm. high. The southwest corner of the foundation-stone of Stela 7 (figure 18, *a*) is 13.5 meters from the southern side of the mound and 4.33 meters from the eastern side. Stela 7 itself (figure 18, *b*), from the best information available, was found lying on the ground 2 meters west of its foundation-stone, apparently just where it had fallen.

The accidental discovery of this foundation-stone, together with a fragment of Stela 24 and a small round altar, in 1916, was by no means the first of its kind, but the culmination of a long series of similar discoveries, such as archaic stelæ and altars traceable to this mound, numerous smaller archaic fragments found in the walls of houses and pavements in the immediate vicinity, etc., all of which made it practically certain that formerly there had been here an important early center of occupation, possibly even the very earliest settlement in the valley. Indeed, this mound had become so important because of these several discoveries that its examination became imperative, and in 1919 the writer excavated the northern half. (See figure 18.)

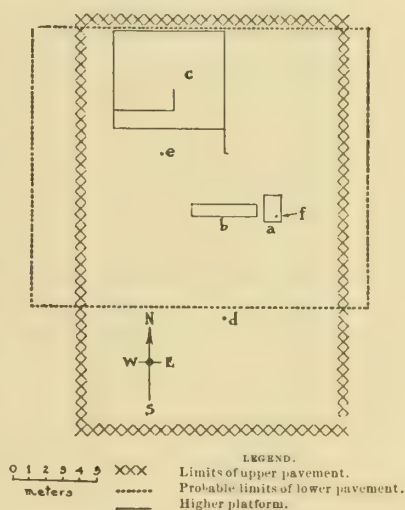


FIG. 18.—Plan of mound of Stela 7 showing location of Stela 7: *a*, foundation-stone of Stela 7; *b*, Stela 7; *c*, stone platform at northwest corner; *d*, lower pavement not found this far south; *e*, cache of worked jades found at this point; *f*, Fragment V'14 found in cruciform chamber underneath foundation-stone of Stela 7.

In figure 19 is shown a cross-section of this mound as well as of Stela 7, its foundation-stone, and the chamber beneath. Referring to this diagram, it will be seen that the surface soil (figure 19, *a*) is a black humus 12.5 cm. deep, below which is a stratum of small fragments of volcanic tuff mixed with occasional larger pieces, light green in color and 12.5 cm. deep (figure 19, *b*).

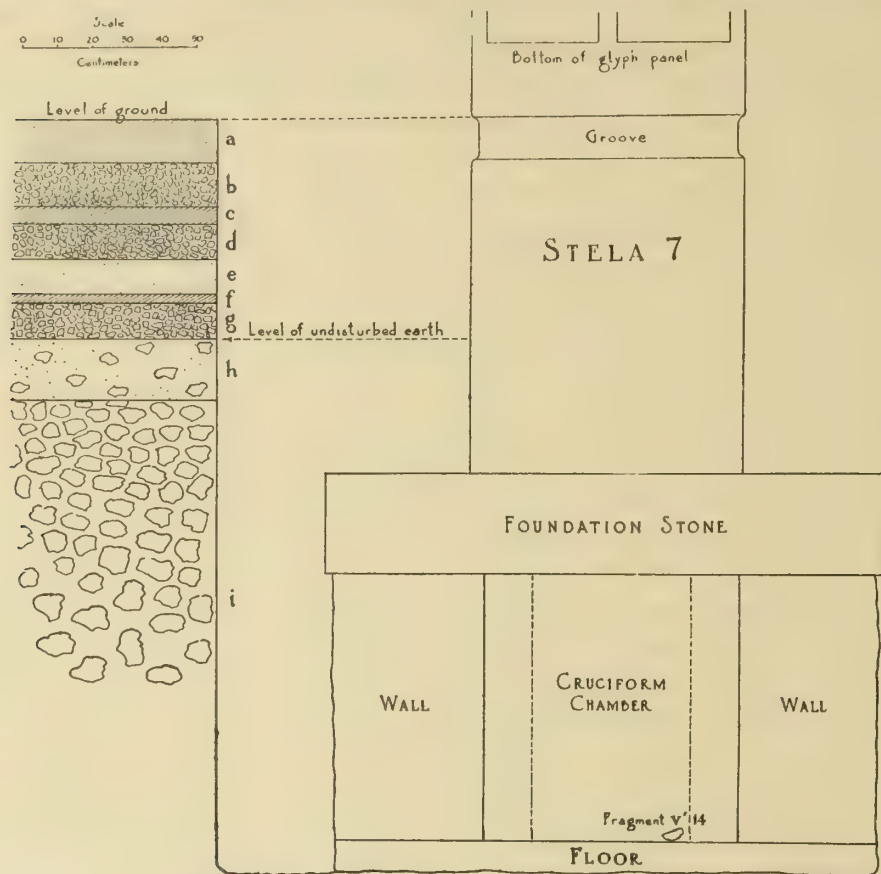


FIG. 19.—North and south cross-section through Stela 7 showing foundation-stone, cruciform chamber, and composition of mound upon which Stela 7 was erected: *a*, humus, 12.5 cm.; *b*, small fragments of volcanic tuff with occasional larger pieces, light-green in color, 12.5 cm.; *c*, pavement of hard lime-plaster, 5 cm.; *d*, same as stratum *b*, 10 cm.; *e*, coarse gravel, pink in color, 10 cm.; *f*, second pavement of hard lime-plaster, 2.5 cm.; *g*, same as strata *b* and *d*, 10 cm.; *h*, undisturbed earth, thick, pasty, black-brown clay, generally free from rocks, 18 cm. verging into *i*, thickly interspersed with pieces of volcanic tuff, light-green, red, brown, and yellow in color to bottom of excavations.

This latter stratum rests on a pavement of hard white lime-plaster 5 cm. thick (figure 19, *c*), which extends throughout the entire mound and which is exceedingly durable and resistant. This is shown by the line xxxx in figure 18. Below this is a stratum of small broken pieces of the same material as stratum *b*, *i. e.*, volcanic tuff of a light green color (figure 19, *d*), also 10 cm. thick; and below this is a stratum of coarse pinkish gravel (figure 19, *e*) 10 cm. thick.

Next comes a second pavement of white lime-plaster (figure 19, *f*) 2.5 cm. deep. This again is very hard, but extends over less ground than the upper pavement. Excavations at *d*, figure 18, 8 meters north of the south-

ern end of the mound, failed to disclose this lower pavement. (See the heavy dotted line in figure 18.) Below this is a third layer of small broken pieces of volcanic tuff (figure 19, *g*) like *b* and *d*, which is 10 cm. deep and rests directly on the undisturbed earth of the valley bottom. The upper 18 cm. of this (figure 19, *h*) is a thick, pasty, black-brown clay generally free from stones, and below this, as deep as the excavations were carried, another meter, the same clay continued, but thickly interspersed with rocks of volcanic origin, light green, red, brown, and yellow in color (figure 19, *i*).

At the northwest corner of the mound was a stone platform (figure 18, *c*) 7 meters long east and west and 6 meters wide north and south, resting on the level of the lower pavement but not rising above the general level of the mound. At *e*, figure 18, 1.5 meters south of this platform, was found a cache of three pieces of worked jade about 7 or 8 cm. below the level of the surface.

One of these is very beautifully carved and represents a human figure in profile 7.5 cm. high, with a hole running through from side to side, so that it could be worn as a pendant. The other two pieces were halves of the same pebble, which first had had a small cylinder reamed out of it, probably to be worked into an ear ornament, and the pebble itself was then sawn in half.

Referring to figure 19, the relation of Stela 7 to this mound is shown graphically. The stela rests directly on the foundation-stone already mentioned, which in turn is the top or cap of a small chamber built beneath it. This chamber is cruciform in plan, each passage being 76 cm. long, 46 cm. wide, and 77 cm. high. The sides and floor are built of squared blocks of stone and the latter rests directly on the undisturbed soil of the valley floor.

Clementino Lopez broke into this chamber from the north side in 1916 and removed the following objects:

1. A sea-shell (*Arca grandis* Broderip).
2. A stone weight with a hole through it.
3. An obsidian spearhead about 18 cm. long.
4. Another of the same material, only slightly longer.
5. An obsidian knife about 15 cm. long.

To these should be added a sixth object (Fragment V' 14, see figure 20, *h*) found by the writer in 1919 at *f*, figure 18, in the southeastern corner of the east-and-west passage of this chamber. (See also figure 19.) This is a small, irregular-shaped fragment of an archaic stela not more than 8 cm. in any dimension. One surface shows part of a glyph painted a bright vermillion. All of these objects, except No. 4, which was lost, are now in the Peabody Museum at Cambridge, Massachusetts.

This deposit or cache under Stela 7 is the earliest example of its kind yet discovered at Copan. Such chambers occur in the Middle Period under Stelæ 1 and I (pp. 161, 162, and 177, 178 respectively), and the practice was continued down to the very end of the Great Period, chambers being found under the foundations of Stelæ M, C, and 4 (pp. 278, 346, and 356 respectively).

It has been noted that the mound of Stela 7 was the richest repository of archaic monuments in the entire valley. For example, of the 22 monuments now referable to the Early Period at Copan, 8 were either found on this mound or were traceable to it, as already described:

Stela 20	Stela 18
Stela 24	Stela 7
Stela 25	Altar P'
Stela 15	Altar Q'

And of the 14 Fragments V' now in the cabildo,¹ 12 were found in the excavation of this mound or built into the walls of houses or pavements in the immediate vicinity, as follows:

- Fragment V' 1, north wall of the house of Domingo Hernández.
- Fragment V' 3, foundations of Stela 7 with fragment of Stela 24.
- Fragment V' 4, excavations of the mound of Stela 7, 1919.
- Fragment V' 6, excavations of the mound of Stela 7, 1918.
- Fragment V' 7, excavations of the mound of Stela 7, 1919.
- Fragment V' 8, excavations of the mound of Stela 7, 1919.
- Fragment V' 9, west wall of the house of Pedro Ramirez.
- Fragment V' 10, pavement in front of house of Clementino Lopez.
- Fragment V' 11, excavations of the mound of Stela 7, 1919.
- Fragment V' 12, excavations of the mound of Stela 7, 1919.
- Fragment V' 13, south wall of the house of Clementino Lopez.
- Fragment V' 14, chamber under foundation-stone of Stela 7.

Taking into consideration the fact that Stelæ 20, 24, 25, and 15 are the four earliest stelæ yet recovered at Copan and, further, the greater abundance of archaic monuments here than at any other single place in the valley, and finally, that at least four and possibly five other archaic monuments, Altars L' and M' and Stelæ 21, 22, and 9, were found in the immediate vicinity, all probably are to be interpreted as indicating that Group 9, where the mound of Stela 7 is located, was the earliest center of intensive occupation in the valley.

Returning now to the consideration of Stela 7, this monument was found to be 4.4 meters long, 79 cm. wide, and 65 cm. thick. The front is sculptured with a human figure of heroic proportions, front presentation, the back and sides being devoted to the inscription. This is the same arrangement of the design as on Stela 18, and Stela 7 may therefore be assigned to the same class, *i. e.*, 4.

The text (see plate 13) opens with a large Initial Series introducing glyph in A1-B3 and an Initial Series in A4-B6a, B8a. This is expressed in head-variant numerals, all of which are very clear and record the date 9.9.0.0.0 3 Ahau² 3 Zotz as follows.

¹All except Fragment V' 14, which is in the Peabody Museum at Cambridge, Massachusetts, Catalogue number, C, 8543.

²It is interesting to note that the variant of Ahau recorded here, the human head in profile, is not surrounded by the customary day-sign cartouche, although the tripod support is present. (See plate 13, B6a.) This is very unusual.

A1-B3	Initial Series introducing glyph
A4	9 cycles
B4	9 katuns
A5	0 tuns
B5	0 uinals
A6	0 kins
B6a	3 Ahau
B8a	3 Zotz

Although there are several other signs of familiar form, their meanings are unknown. The texts on the two narrow sides also open with Initial Series introducing glyphs, although no Initial Series follows in either case. It should be noted that the variable central element is the same in all three of these signs, namely, a grotesque head, as is also true of the corresponding element on Stela 15. There are $23 + 23 + 23 = 69$ glyph-blocks in this text, the Initial Series introducing glyphs on the sides occupying the space of 4 glyph-blocks each, and the one on the back the space of 6 glyph-blocks.

Stela 7 is just 2 katuns and 10 tuns (approximately 50 years) later than Stela 9, and, as would naturally be expected, shows a considerable advance in style over the latter. Until the discovery of Stela 18 by Spinden in 1912, this monument was thought to be the earliest example of the front presentation of the human figure extant at Copan.

STELA E.

Provenance:	Original position uncertain, possibly at Group 9. Found lying on the terrace on the west side of the Great Plaza just east of Mound 1 at the Main Structure. The associated altar (now badly shattered) is at the base of this terrace, in front of the stela. (See plate 6.)
Date:	(Stela) 9.9.2.17.0 10 Ahau 8 Uo (?) (Altar) 9.9.5. 0.0 9 Ahau 18 Uo.
Text, (a) photograph:	Spinden, 1913, plate 18, 2 (front only).
(b) drawing:	plate 14. Maudslay, 1889-1902, vol 1, plate 49. Seler, 1902-1908, vol. 1, p. 773, figure 223.
References:	Goodman, 1897, p. 131. Gordon, 1896, pp. 24, 35. Maudslay, 1889-1902, vol. 1 of text, p. 48. Seler, 1902-1908, vol. 1, pp. 773, 774. Spinden, 1913, pp. 158, 159, 161. Thomas, 1900, p. 778.

Stela E lies on the terrace at the western side of the Great Plaza in front of Mound 1 at the Main Structure. If it is *in situ* here, it is necessary to assume that the terraces surrounding the Great Plaza were built before the erection of the Great Plaza itself, that is to say, some time during the Early Period. As this question will be fully presented in the discussion of Stela I and its altar (pp. 177-183), it will not be anticipated here other than to state the writer believes that Stela E and its altar were brought to the positions where they are now found, possibly from Group 9, at some time after 9.12.5.0.0, *i. e.*, during the Middle Period.

The reasons for assigning Stela E to Group 9 originally are two, first because it is obviously not *in situ* in its present position at the Main Struc-


ture, and second because the hotun in the Long Count next earlier than that probably commemorated by Stela E was marked by a monument which was found at Group 9, namely, Stela 7.

The altar, of which only a fragment now remains (see plate 14, *d*), stands at the base of the western terrace. Formerly it doubtless stood above on top of the terrace directly in front of the stela.

Stela E is 3.53 meters long, 65 cm. wide, and, 54 cm. thick. The front is sculptured with a human figure, and the back and sides with glyphs; on the basis of which arrangement it may be assigned to Class 4.

The inscription is unusual in many ways, and, so far as the writer knows, its date has never been previously deciphered. The readings suggested, although not certain, have much in their favor, and, so far as the final or contemporaneous date is concerned (9.9.5.0.0), may probably be accepted as correct.

The text opens with an Initial Series introducing glyph in A1-B2 (see plate 14, *a*); and this appears to be followed by an Initial Series number in A3-B7.¹ The signs for the cycle, katun, and tun appear very clearly in B3, B4, and B5, respectively; but the uinal-sign in B6 is entirely effaced and the kin-sign in B7 almost so. The coefficients in A3-A7 are even less satisfactory. The cycle coefficient in A3 is effaced, and, although perfectly clear, the katun coefficient in A4 is unfamiliar. Indeed, the cycle coefficient, judging from what is left of it, is neither a bar-and-dot nor a head-variant numeral. Antecedent probability suggests that it stands for 9. The katun coefficient in A4 bears little resemblance to any of the known head-variant numerals, and, so far as its appearance goes, might be assigned almost any value. The tun, uinal, and kin coefficients are illegible.

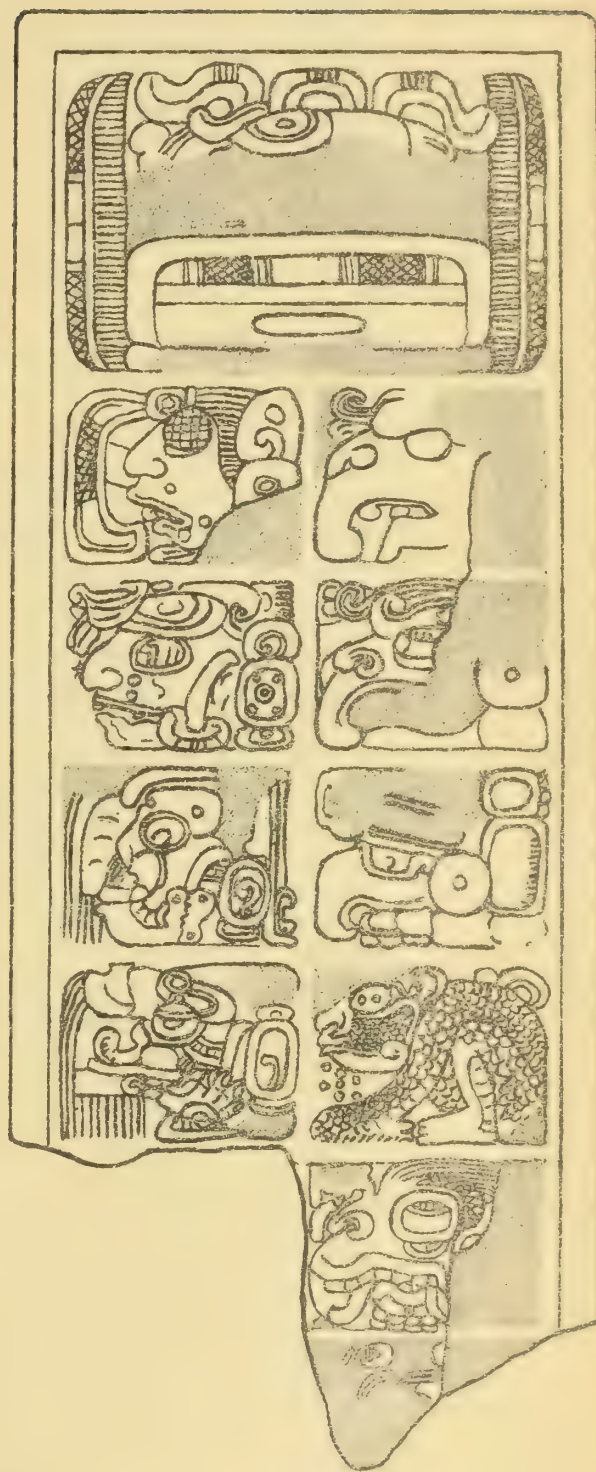
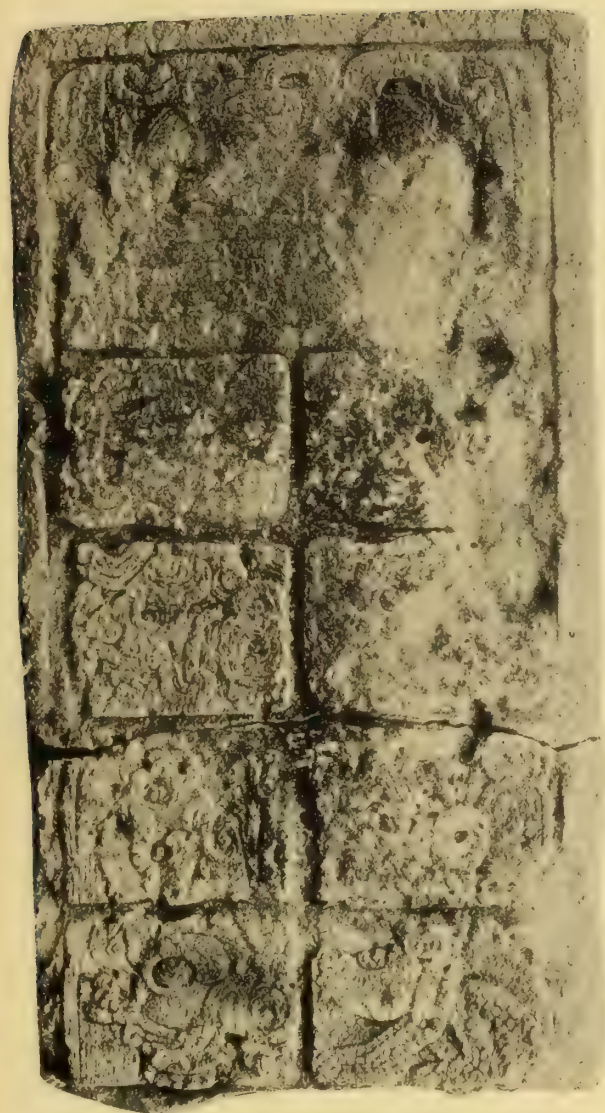
Difficulties do not cease here, moreover. The day of the Initial Series terminal date should be recorded at A8; but although this glyph is perfectly preserved, it is obviously not a day-sign. In fact, the only possible day-sign on this side of the monument is B9, where Goodman sees the day 2 Ix, and following this in A10 the month 7 Yax.² He makes no attempt, however, to fix the position of this date in the Long Count, and its accuracy may well be doubted for the following reasons: In the first place, A10 is not the sign for 7 Yax. The head there presented bears only a very general resemblance to the head for 7, and the Cauac sign to its left lacks the Yax element,  the distinguishing characteristic of the sign for this month. And in the second place, the reading suggested below is much more appropriate for the date of this stela. There are no day or month-signs or other known glyphs in the remainder of the inscription on the front.³

The text on the north side (plate 14, *b*) opens with four glyphs which have an important bearing on this inscription, inasmuch as the third and

¹Nothing below the tun-sign and coefficient, A5-B5, is shown in plate 14, *a*.

²Goodman, 1897, p. 131.

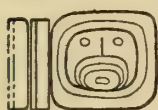
³According to Gordon (1896, p. 35) the human figure side of Stela E faced east. If this is true the Initial Series was recorded on the west side, and the Initial Series terminal date c2b, c3 on the north side.



Stela 15. Inscription on the front. Drawn from the original.

fourth almost certainly declare the Initial Series terminal date. The first glyph on this side (c1 u. h.) is very clearly Glyph C of the Supplementary Series.¹ The second glyph (c1 l. h.) is one of the forms of the variable Glyph X, which almost always stands between Glyphs C and B of the Supplementary Series. The third glyph (c2a, u. h.) is Glyph B of the Supplementary Series; and, the fourth (c2b, u. h.) is Glyph A of the Supplementary Series. Following this, in the regular position in c2 l. h., c3 is the Initial Series terminal date above mentioned.

A correction in Maudslay's drawing of c2 l. h. should be noted here. A careful study of the original proved beyond any possibility of doubt that this glyph is 10 Ahau. A comparison of the writer's drawing with that of Maudslay shows that a very slight change in the latter will make it look like the former.



Glyph c3 as drawn by Maudslay is substantially correct, and it records either 8 Uo or 8 Zip, the uncertainty arising from the fact that the prefixial or superfixial element which alone differentiates these two month-signs from each other (see pp. 66, 67) is effaced. We therefore have recorded in c2 l. h. c3 either one of two dates: 10 Ahau 8 Uo, or 10 Ahau 8 Zip. Making the customary assumption, *i. e.*, that one of these two dates ended a katun, lahuntun, or hotun in the Early Period, it will be found from Goodman's tables that the date 10 Ahau 8 Uo did not occur at all in Cycle 9 at the end of a katun, lahuntun, hotun, or even a tun, and that the date 10 Ahau 8 Zip occurred but once, namely, at 9.5.10.0.0. But it is clear from the character of the sculpture on Stela E² that the latter date is too early for this monument, and that on stylistic grounds it also must be rejected.

This necessitates the hypothesis that the Initial Series of Stela E did not record a katun, lahuntun, hotun, or tun ending in the Long Count;³ and the next step in the elucidation of this text is to ascertain at just what positions in the Early Period these two dates did occur. A list of these follows:

(1) 9.1. 4.14.0	10 Ahau 8 Uo	(5) 9.0. 4.10.0	10 Ahau 8 Zip
(2) 9.3.17. 9.0	10 Ahau 8 Uo	(6) 9.2.17. 5.0	10 Ahau 8 Zip
(3) 9.6.10. 4.0	10 Ahau 8 Uo	(7) 9.5.10. 0.0	10 Ahau 8 Zip
(4) 9.9. 2.17.0	10 Ahau 8 Uo	(8) 9.8. 2.13.0	10 Ahau 8 Zip

As the first, second, fifth, sixth, and seventh dates above are much too early on stylistic grounds to have been possible here, we have only three left from which to choose. But before attempting to decide which one of these is recorded by this Initial Series, let us first examine the remainder of the inscription, which is continued on the south side of the stela and concluded on the periphery of the round altar, which was associated with it.

¹See Appendix VI.

²For the position of Stela E in the stylistic sequence of monuments at Copan, see Spinden, 1913, table 1.

³The accuracy of this hypothesis, of course, also depends upon the correctness of the original assumption that c2 l. h. c3 is the terminal date of this Initial Series, concerning which there can be but little doubt.

The only other decipherable glyph on the north side of Stela E is c13 (see plate 14, *b*) which records some day Ahau. The day-sign itself is perfectly clear, but the coefficient is doubtful, there being either 1 or 2 bars and either 1, 2, or 3 dots. Close examination of the original led to the conclusion that there are probably 2 bars and 3 dots, and that the day recorded here is 13 Ahau. A possible explanation for the record of this particular day is that it stands for the Calendar Round date 13 Ahau 18 Tzec, which is recorded on the opposite or south side of the stela.



The first surely decipherable glyph on the south side is D10 (see plate 14, *c*, third glyph-block from the top). This records the Calendar Round date 13 Ahau 18 Tzec. Unfortunately the glyphs following this, particularly the last three, which might have shed some light on its corresponding position in the Long Count, are almost entirely effaced, except D12 l. h. which is clearly 9 Ahau, reason for the record of which here will appear later.

Assistance failing from this source, it is still possible, however, to determine at what positions this 13 Ahau 18 Tzec occurred in the Early Period. These will be found to have been as follows:

9.1. 2.17.0 9.6.8.7.0
9.3.15.12.0 9.9.1.2.0

Again we may eliminate the first two on the ground that they are too early to be consistent with the style of Stela E; but before attempting to decide between the last two, let us examine the continuation of this text, namely, the inscription on the accompanying altar. It should be noted, however, that 13 Ahau 18 Tzec is within 2 years of 10 Ahau 8 Uo, whereas it is separated from the other possible reading of the Initial Series terminal date, 10 Ahau 8 Zip, by nearly 20 years. *A priori*, therefore, 10 Ahau 8 Uo is a better reading for the Initial Series than 10 Ahau 8 Zip.

The altar of Stela E is of the early drum-shaped variety;¹ as already noted (p. 108), it stands in the Great Plaza just at the base of the terrace on which Stela E now lies. So far as the writer knows, a reproduction of its text has never been published before. The fragments preserved, of which there are two, show that this altar, like the altars of Stelæ I, 1, 13, 19, and 5, has glyphs inscribed around its periphery. (See plate 14, *d*.)


¹Spinden (1913, pp. 160, 161 and table 1) mentions 8 altars of this type, as follows:

- | | |
|---------------------------|-------------------------------|
| (1) The Altar of Stela 1 | (5) The Altar of Stela 1 |
| (2) The Altar of Stela 12 | (6) The East Altar of Stela 5 |
| (3) The Altar of Stela 13 | (7) The West Altar of Stela 5 |
| (4) The Altar of Stela E | (8) Altar 14 |

The writer, however, believes No. 2 is not an altar at all, but only a roughly rounded stone which served as the foundation-stone of Stela 12. It is, moreover, the only undecorated one of the eight, which further tends to support this view of it.

And to these should be added another, the Altar of Stela 19 (No. 9), two fragments of which the writer found in 1915. All are of about the same general size, from 1.5 to 2 meters in diameter and from 0.5 to 0.75 meter in height. All are sculptured except No. 2; and with the exception of Nos. 2 and 8 all are inscribed with glyphs. Of the seven presenting inscriptions, No. 4 belongs to the Early Period and the other six to the Middle Period. Nos. 1, 6, and 7 record Initial Series; Nos. 3 and 5, Secondary Series; and Nos. 4 and 9 are incomplete. That the inscriptions on these altars are continuations of the inscriptions on the stelæ with which they were respectively associated seems probable. This is certainly true of No. 5, and almost certainly true of Nos. 3, 4, and 9. But the relationships between Nos. 1, 6, and 7, *i. e.*, the three presenting Initial Series, and their respective stelæ are not so clear, and there are grounds for believing that these last three altars originally may either have stood by themselves or have been associated with stelæ other than those with which they are now found.

The glyph-blocks are arranged in two horizontal rows, the upper being separated from the lower by a deep horizontal channel or groove, and the individual glyph-blocks from each other by vertical channels of the same size and depth.

The fragments preserved show parts of eleven contiguous glyph-blocks in the lower band (B2-L2, plate 14, *d*) and parts of four in the upper band (D1-G1). Fortunately there is a Calendar Round date in F1bE2 which fixes the order of reading as being from left to right and top to bottom in pairs of vertical columns, as follows: (A1,  B1,A2),¹ B2, (C1),D1,C2,D2, E1,F1,E2,F2, G1,(H1),G2,H2,(I1,J1),I2, J2, (K1, L1),K2, L2.

The upper half of F1b (the day of this Calendar Round date) is effaced, but the lower half shows clearly that it was Ahau. The day-sign coefficient originally stood above the day-sign, but it is now broken off. Most happily the corresponding month-part in E2 is the clearest glyph in the entire text and unmistakably records 18 Uo. Compare this with the forms for Uo on p. 66, and see also Appendix X. We have then on this altar a Calendar Round date, ? Ahau 18 Uo, the only missing part being the day-sign coefficient.

Before attempting to assign this fragmentary date to its proper position in the Long Count, a slight digression is first necessary in order to lay before the reader certain additional data, which have an important bearing on the probable significance of this date.

Heretofore the hotun-endings commemorated by the stelæ of the Early Period have been those of second and fourth hotuns, that is to say, lahuntuns (half katuns) and katuns respectively, and none has been the first or the third quarter of a katun.

With Stela E, however, as will appear later, the custom of similarly commemorating the completion of first and third quarter katuns by the erection of stelæ seems to have been introduced.²

Of the 29 stelæ³ at Copan, which are known to have Initial Series recorded upon them, 6 (Stelæ 5, 16, 17, 18, 20, and 21) are too fragmentary or effaced to permit the determination of their exact dates, although even some of these, 5, 17, 18 and 20 for example, appear to record hotun-endings;

¹These and the other glyphs following which are inclosed by parentheses, are missing. It is necessary to assume the existence of at least one more column (A) to the left of the first one preserved (B), in order to have the glyphs follow their proper sequence as given above.

²The earliest certain example of this latter practice elsewhere is Stela 25 at Piedras Negras (see plate 1), which records the date 9.8.15.0.0 10 Ahau 8 Tzec, 10 tuns earlier than that of Stela E.

³Namely:


Stela A	Stela J	Stela 2	Stela 7	Stela 15	Stela 20
Stela B	Stela M	Stela 3	Stela 9	Stela 16	Stela 21
Stela D	Stela N	Stela 4	Stela 10	Stela 17	Stela 23
Stela E	Stela P	Stela 5	Stela 12	Stela 18	Stela 24
Stela I	Stela 1	Stela 6	Stela 13	Stela 19	


There are 36 stelæ in all now known at Copan. The above list does not include the following 7: C and F, which show Initial Series introducing glyphs but no accompanying Initial Series (see pp. 345-351 and 353-355); H and 8, which have only Calendar Round dates (see pp. 351-353, and 340-343), 22 and 25, which are too fragmentary to tell anything about (see pp. 68, 69 and 69-71), and 11, which only has a day Ahau (pp. 369, 370).

but of the remaining 23, 19,¹ or over 82 per cent, have hotun-endings as their final dates; that is to say, these 19 are in themselves true hotun-markers.

Of the remaining 4 (Stelæ E, I, 10, and 19), even although all their dates have been deciphered, not one records a hotun-ending. Indeed, unless some explanation be advanced to account for this fact, these stelæ must be regarded as important exceptions to the general thesis, already stated several times, that all stelæ were erected or at least dedicated, *i. e.*, put into formal use, on katon, lahuntun, or hotun-endings of the Long Count.

It will appear later, in the description of Stela I, that although its Initial Series terminal date is not in itself a hotun-ending, it is continued by a Secondary Series on the associated altar, which does lead to a hotun-ending (p. 179). And if this is true in regard to Stela I and its altar, the question at once arises, why may not a similar relation exist between Stela E and its altar?

But we have already seen that this altar has the date ? Ahau 18 Uo on it, and by using Goodman's tables, it will be found that only *one* hotun in Cycle 9 ended on 18 Uo, namely, 9.9.5.0.0 9 Ahau 18 Uo. We are therefore probably justified in filling in the missing part of F1b in plate 14, *d*, thus:  and in accepting this hotun as the date of Stela E and its altar.

In partial support of this reading, it should be noted that 9 Ahau,  the day on which this hotun ended, has already appeared before on the stela, namely, at D12 l. h. (see plate 14, *c*, next to last glyph-block).

So much for the chronological side of Stela E and its altar. Let us next ascertain where this monument is to be assigned on stylistic grounds.

Spinden, in his arrangement of the monuments at Copan according to their stylistic criteria, places Stela E between Stelæ 7 and P with considerable assurance.² But we have already seen that the date on Stela 7 was 9.9.0.0.0, and it will be shown in the discussion of Stela P to follow (p. 115) that its date is equally sure as 9.9.10.0.0; therefore, on stylistic grounds Stela E must date from some time during the ten years between 9.9.0.0.0 and 9.9.10.0.0. But we have already seen (1) that the altar of Stela E probably shows the date 9 Ahau 18 Uo, which closed the only hotun between these two dates, *i. e.*, 9.9.5.0.0; and (2) that in the case of Stela I, the altar associated with it brought its Initial Series up to the next hotun-ending thereafter. The analogy here is so striking that it seems necessary to admit that the altar of Stela E originally presented the date 9.9.5.0.0 9 Ahau 18 Uo, and further, that formerly it probably had a Secondary Series number which brought the Initial Series terminal date of the stela forward to this hotun-ending. This decipherment of the date of Stela E and its altar is further corroborated by the record of the day of the hotun-ending the two were erected

¹Namely:

Stela A	Stela M	Stela 1	Stela 4	Stela 9	Stela 15
Stela B	Stela N	Stela 2	Stela 6	Stela 12	Stela 23
Stela D	Stela P	Stela 3	Stela 7	Stela 13	Stela 24
Stela J					

²See Spinden, 1913, p. 159 and table 1.

to commemorate, 9 Ahau, on the stela itself at D12 l. h., thus linking the stela with its altar, which fixes the position of both in the Long Count.

That the date selected for the altar of Stela E is just midway between the dates of Stela 7 and P, and records, moreover, an even hotun-ending in the Long Count, will appear from the following:

Stela 7	9.9. 0.0.0	3 Ahau 3 Zotz
	5.0.0	(1 hotun)
Altar of Stela E	9.9. 5.0.0	(9 Ahau) 18 Uo
	5.0.0	(1 hotun)
Stela P	9.9.10.0.0	2 Ahau 13 Pop

It remains only to select from the list of possible Initial Series on page 109 the one which was probably recorded on Stela E, and from which a Secondary Series on the altar associated with Stela E probably brought the count forward to 9.9.5.0.0.

An examination of the three Initial Series left on page 109, the third, fourth, and eighth, leads to the conclusion that the fourth (9.9.2.17.0) is the one most likely to have been recorded on Stela E for the following reasons:

1. The third date, 9.6.10.4.0, is too early to be stylistically probable, and on this ground almost certainly may be eliminated.
2. The eighth date, 9.8.2.13.0, is equally improbable, since the Initial Series terminal date is almost certainly 10 Ahau 8 Uo and not 10 Ahau 8 Zip. From what remains of the prefix of c3 (the month-sign of the Initial Series terminal date) it bears a much closer resemblance to the prefix (or superfix) of Uo than it does to the prefix (or superfix) of Zip. Compare c3 plate 14, *b* with E2 plate 14, *d*, and the forms for Uo and Zip given on pp. 66, 67, and others in Appendix X. Indeed, there is little doubt but that c3 records 8 Uo and not 8 Zip.
3. The fourth date, 9.9.2.17.0, is nearest the hotun-ending probably recorded on the associated altar, *i.e.*, 9.9.5.0.0.
4. The fourth date is the only one between the limits 9.9.0.0.0 and 9.9.10.0.0, the period from which Stela E must date on stylistic grounds; and finally,
5. The fourth date, 9.9.2.17.0, is within 1 uinal of a tun-ending, *i.e.*, 9.9.3.0.0.

For these reasons the writer regards 9.9.2.17.0 10 Ahau 8 Uo as the Initial Series of Stela E.

It is also possible that a Secondary Series number, 2.1.0, was recorded on the altar of Stela E, since this number exactly bridges the gap between the Initial Series of Stela E and the closing date of its altar as deciphered above; and it is also possible that the partially effaced glyphs on the south side of Stela E formerly may have presented the distance number 1.15.0, the time necessary to bridge the gap between 9.9.1.2.0 13 Ahau 18 Tzec in c10 and 9.9.2.17.0 10 Ahau 8 Uo, the Initial Series terminal date.

If the former possibility were true, the analogy already pointed out between Stela E and its altar and Stela I and its altar would be complete.

A summary of the inscription on Stela E and its altar, as deciphered, follows.

Stela E, west side,	A1-B2	Initial Series introducing glyph
	A3, B3	? probably 9 cycles
	A4, B4	? probably 9 katuns
	A5, B5	? probably 2 tuns
	A6, B6	missing, probably 17 uinals
	A7, B7	missing, probably 0 kins
	north side, C2 l.h. C3	10 Ahau 8 Uo
south side,	C13	13 Ahau, perhaps 13 Ahau 18 Tzec
	D10	13 Ahau 18 Tzec, perhaps 9.9.1.2.0
	D12 l. h.	9 Ahau, perhaps 9.9.5.0.0.0 9 Ahau 18 Uo
Altar,	F1bE2	9 Ahau 18 Uo, probably 9.9.5.0.0

Seler has suggested the reading 9.13.?.?.? for this monument, but, as will appear later, upon entirely erroneous grounds.¹ He says:

"Among the multipliers [*i. e.*, coefficients] particularly noticeable is that of the first group [*i. e.*, A3, the cycle coefficient] which represents quite a new form, and about which I dare express only a surmise—that it is possibly another form of the heiroglyph 9. The multiplier of the second group [*i. e.*, A4, the katun coefficient] appears to be like that of the third of Stela P [Maudslay, 1889-1902, vol. I, plates 88, 89, A4a] for which the value 13 must be supplied. With the third multiplier of Stela E [*i. e.*, A5, the tun coefficient] all identification ceases."²

This text has $23 + 13 + 13 = 49$ glyph-blocks the Initial Series introducing glyph occupying the position of four glyph-blocks.

Since the only two lines of evidence available—artistic and chronologic—both agree upon 9.9.5.0.0 as being the most likely date for Stela E, it may probably be accepted as correct; and on the basis of this date, as already noted, this monument may possibly be referred to Group 9, where the previous hotun-marker, Stela 7, is known to have stood in ancient times.

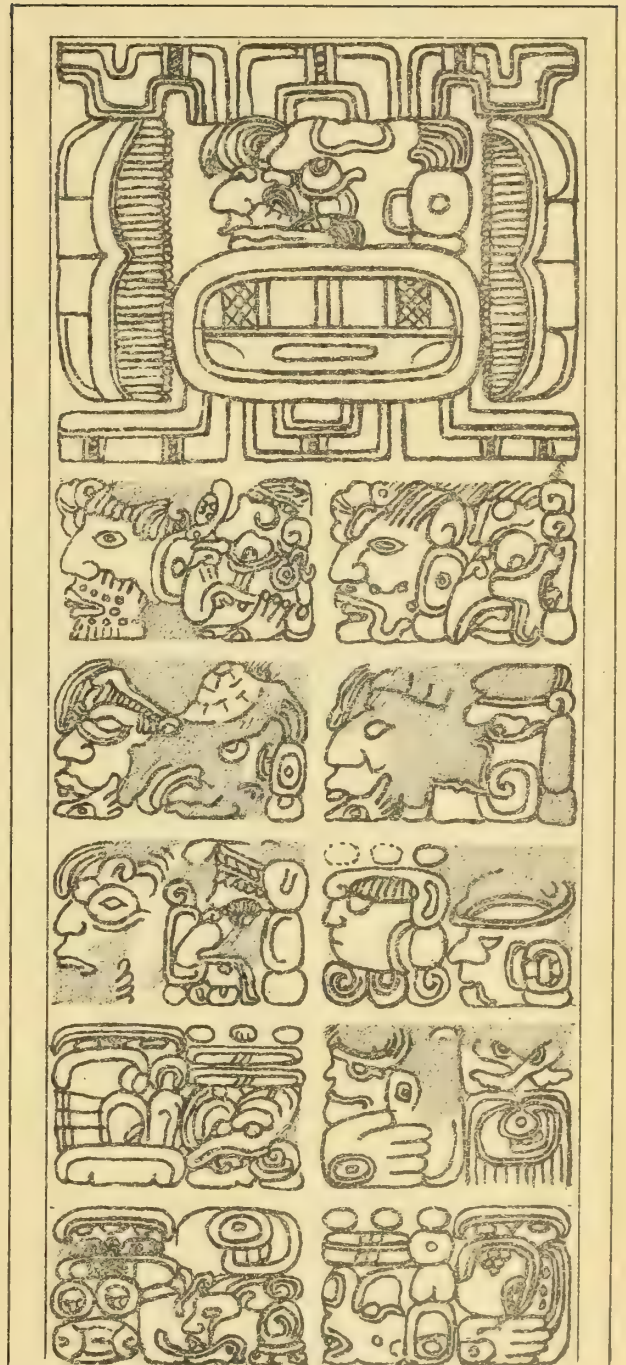
STELA P.

Provenance:	Original position uncertain, possibly at Group 9. Now standing in the Western Court at northwest corner of Mound 16 at the Main Structure. (See plate 6.)
Date:	9.9.10.0.0 2 Ahau 13 Pop.
Text, (a) photograph:	Maudslay, 1889-1902, vol. I, plates 86 and 88. Spinden, 1913, plate 18, 3 (front only).
(b) drawing:	Maudslay, 1889-1902, vol. I, plates 87-89. Morley, 1915, figure 69, B. Seler, 1902-1908, vol. I, page 772, figure 222. Stephens, 1841, vol. I, facing p. 140 (front only). Thomas, 1904, figures 150 and 151.
References:	Bowditch, 1910, pp. 143, 144, and table 29. Galindo, 1834, Appendix XI, p. 597. Goodman, 1897, p. 133. Gordon, 1896, pp. 15, 35. Maudslay, 1889-1902, vol. I of text, pp. 58, 59. Seler, 1902-1908, vol. I, p. 773. Spinden, 1913, pp. 156, 158, 159, 162, and table 1. Stephens, 1841, vol. I, p. 140. Thomas, 1904, pp. 223-226.

¹The assumption that the cycle coefficient is 9 is doubtless correct, but the identification of the katun coefficient as 13 can not be substantiated by the evidence adduced. This identification is based upon the similarity which Seler believes exists between the katun coefficient of Stela E and the tun coefficient of Stela P. Even granting this similarity, which the writer does not, the identification of the katun coefficient as 13 collapses, since the tun coefficient of Stela P is not 13 but 10, as will appear in the discussion of that monument to follow.

²Seler, 1902-1908, vol. I, p. 774.





Stela 7. Part of the inscription on the back. Drawn from the original.

This monument is the only one from the Early Period described by Stephens, who named it Statue B, and it is the first stela thus far presented which was standing when found.¹ It is in the Western Court at the foot of Mound 16 and is 3.2 meters long, 76 cm. wide at the widest part, and 66 cm. thick. It is wedge-shaped, being wider at the top than at the bottom, which gives it a top-heavy and unwieldy appearance. Although it is doubtless standing just where it did when the city was abandoned, Stela P can not be regarded as *in situ* strictly speaking, since its date, 9.9.10.0.0, is earlier than the earliest possible date of construction of the Western Court. The whole southern half of the Main Structure, including the Eastern and Western Courts and the Court of the Hieroglyphic Stairway, dates from the Great Period, or the latter part of the Middle Period, and any monuments of the Early Period found here, as Stela P for example, must have been brought thither from some earlier location after 9.15.0.0.0 or thereabouts.

A parallel case already noted is that of Stela E on the terrace at the west side of the Great Plaza. Its early date also clearly indicates that it too could not have been *in situ* where found. It therefore seems likely that Stelæ E and P (successive hotun-markers in the Long Count) were brought from some other group to their present positions; and all circumstances point to this group having been the large settlement at Group 9, probably the largest in the valley during the Early Period, where Stela 7 was found, these three monuments, as we have just seen, recording three successive hotun-endings in the Long Count.

The front of Stela P is sculptured with a large human figure, which still shows archaic features, the top of the monument being broader than the bottom; the effect being wedge-shape. The eyes are bulging, and the arms, legs, and face crudely carved, flat, and heavy.² The inscriptions on the back and two sides open with Initial Series introducing glyphs, but only that on the back is followed by an Initial Series number, A3-A5a, B6b, Glyph A, of the Supplementary Series appearing in B6a. The number is expressed by head-variant numerals, all of which are perfectly clear and record the date 9.9.10.0.0 2 Ahau 13 Pop, as follows:

A1-B2	Initial Series introducing glyph
A3	9 cycles
B3	9 katuns
B4	10 tuns
B4a	0 uinals
B4b	0 kins
A5a	2 ³ Ahau
B6b	13 Pop

Seler reads the Initial Series of Stela P as 9.9.13.0.0 3 Ahau 3 Uayeb.⁴ This reading, however, is open to five serious objections, four of which

¹Stephens, 1841, vol. 1, p. 140.

²Spinden, 1913, p. 156.

³Maudslay's drawing (1889-1902, vol. 1, plate 89, glyph 5 left half) incorrectly shows 1 as the day-sign coefficient. A careful study of the original, however, established the presence of two dots and two ornamental scrolls, as in the accompanying figure, making the number 2 instead of 1.

⁴Seler, 1902-1908, vol. 1, p. 773.



exclude even the possibility of his being correct, since they are contradicted by evidence in the text itself:

1. The day coefficient is clearly 2, not 3.
2. The month-part 3 Uayeb does not appear in the text at all, while the month-part 13 Pop is unmistakably recorded in B6b at its regular position after Glyph A of the Supplementary Series.
3. An examination of the original showed that the tun coefficient (A4a) has the fleshless lower jaw and is therefore to be identified as 10, not as 13.
4. 9.9.13.0.0 3 Ahau 3 Uayeb does not end a hotun in the Long Count, whereas 9.9.10.0.0 2 Ahau 13 Pop, which also fulfills all the other necessary conditions as to coefficients, month-sign, etc., does end a hotun.
5. Finally, the record of a lahuntun-ending in B7a corroborates the reading 9.9.10.0.0 and at the same time disqualifies the Tun 13 reading.

Seler's identification of the tun coefficient of Stela P as 13 has led him into another error already noted in connection with Stela E, whose katun coefficient he calls 13 on the basis of its fancied resemblance to the tun coefficient on this monument. Bowditch was the first to decipher the Initial Series of Stela P correctly.¹

An ending-sign appears in A7a, and a hotun-ending may possibly be recorded in B7b. B7a is the sign for the lahuntun, mentioned also in the discussions of Altar Q' and Stela 15, pages 61 and 88, respectively, and its presence here further corroborates Bowditch's reading. Other familiar glyphs appear throughout the text, B10 for example, probably being 4 katuns and D11 (south side) 3 katuns.

This text has $25 + 25 + 23 = 73$ glyph-blocks, each of the three Initial Series introducing glyphs occupying the space of four glyph-blocks.

The glyphs on Stela P are excellently carved with an infinite attention to detail. Says Bowditch in this connection: "The glyphs of Stela P, Copan, are the most ornate and variegated of all the inscription glyphs."¹

Even at this early date—the close of the Early Period—the Maya sculptors were beginning to show signs of that great ability which was to reach its fullest expression a hundred years later.

With Stela P concludes the presentation of the monuments of the Early Period. Before reviewing this material, however, it is first necessary to describe briefly a few fragmentary inscriptions of uncertain date, namely, Fragments V' and S'.

Under V' are included 14 fragments all surely referable to the Early Period and all from the southwestern quarter of the village (see figure 22 *h'-v'*); and S' is a reused fragment from mound 9 at the Main Structure, dating from the end of the Early Period or the beginning of the Middle Period.

¹Bowditch, 1910, p. 144.

FRAGMENTS V'.

Provenance:	Original positions unknown. Found in the excavations of the mound of Stela 7, or built into the walls of houses or in pavements in the southwestern quarter of the village in the immediate vicinity of Stela 7 (Group 9). Now in the cabildo. (See plate 3, and figure 22, <i>h'-v'</i> .)
Date:	Early Period.
Text, drawing:	figure 20.

Under Fragments V' have been included 14 small broken pieces showing glyphs sculptured on one or more sides. All were found in the southwestern quarter of the village in the immediate vicinity of the mound of Stela 7 (see figure 22, *h'-v'*), and some at least probably belong to one or other of the broken archaic stelæ also found nearby, Stelæ 22, 25, 20, 24, 15, 21, and 18. When the writer was at Copan in March 1916 he removed all these from the various houses and pavements into which they had been built, and placed them in the cabildo under the custody of the village authorities; and in 1919 he installed a small local museum in a room at the southern end of the cabildo, where all the fragmentary inscriptions subsequently found were brought together. A list of the monuments and fragments left in the cabildo in June 1919 follows:

A. UNDER THE FRONT CORRIDOR OF THE CABILDO.

1. Stela 7, two large pieces.
2. Stela 15, two large pieces and one small piece.



B. NEXT TO LAST ROOM AT SOUTHERN END.

3. Stela 22, one medium piece.
4. Stela 21, one small piece.
5. Stela 20, one large piece and two medium pieces, the latter fitting together.
6. Stela 24, one large piece.
7. Stela 25, two small pieces.
8. Fragment E', one small piece.
9. Fragment Y', one small piece.
10. Fragment Z', one small piece.
11. Altar S, complete in one piece.
12. Fragments V', 1-13.

Concerning the last, Fragments V', it should be noted before proceeding with their detailed examination that all were found within a radius of 100 meters of Stela 7, and all are probably pieces of one or other of the monuments also found in the immediate vicinity.

In making assignments of Fragments V' to these several stelæ, the best line of evidence available is the sizes of their respective glyph-blocks. While these vary as much as 2 or 3 cm. on a single monument in extreme cases, on the whole they are exceedingly uniform and furnish the best criterion of comparison between any two pieces. In order to facilitate such comparisons in the descriptions which follow, a table of the sizes of the glyph-blocks on these monuments is given at the top of page 118, all measurements being in centimeters.

Monument.	Front.		Sides.	
	Heights.	Widths.	Heights.	Widths.
Stela 15	22-23	29-31	22	34
20	16-18	18-20	16-19	23-24
21	missing.	26	25	28
22	16	21	plain.	
24	18-19	27-28	plain.	
25	21-30	34	missing.	
16	24	26	plain.	
17	20	24	plain.	
18	17-18	29	18-20	15-16

Fragment V'1. This piece (figure 20, *a*) was found in the north wall of the house of Domingo Hernández, whither it had been carried from the mound of Stela 7 in 1897. (See figure 22, *p'* and *q'*). The single sculptured face preserved has remains of two vertical columns of glyph-blocks, each block being 17 cm. high and  24 to 25 cm. wide, indicating that this fragment is probably from the front or back of a stela and not from the sides. Judging from the  glyph-blocks, the original width of the monument must have been about 70 cm. Only one of the glyphs is familiar, the sign for Kankin.

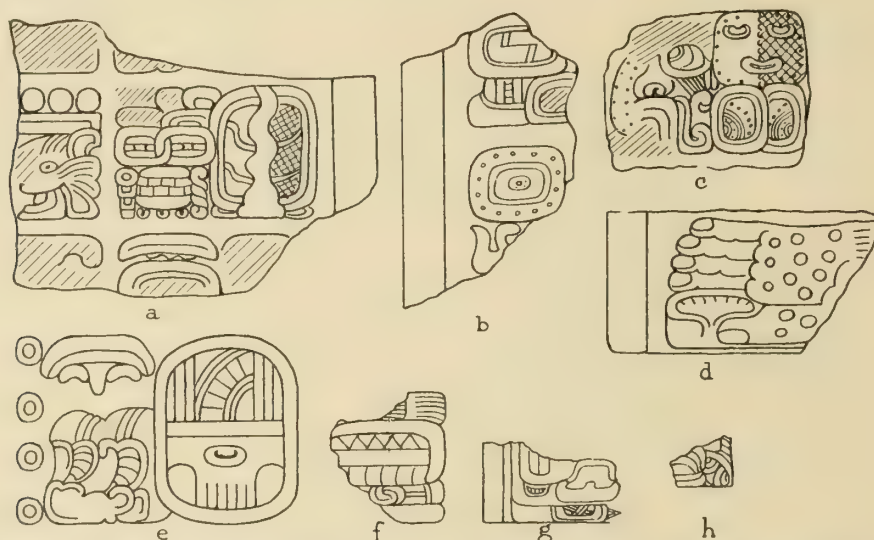


FIG. 20.—Inscriptions on: *a*, Fragment V'1; *b*, Fragment V'9; *c*, Fragment V'10; *d*, Fragment V'2; *e*, Fragment V'6; *f*, Fragment V'3; *g*, Fragment V'5; *h*, Fragment V'14.

The side adjoining the sculptured face is so badly effaced that it is now impossible to say whether it had formerly been plain or sculptured. The relief is low and resembles that of the other archaic monuments in the immediate vicinity.

A comparison of the size of the glyph-blocks of this fragment with those given in the above table will show that the only ones of similar size are those on the side of Stela 20; but we have already seen that the side adjoining the sculptured face of this fragment, in spite of much weathering, looks as though it had always been plain, indicating that we are dealing with a Class 1 or Class 2 stela, and therefore the possibility of its having been a part of Stela 20 may be eliminated, as the latter is in Class 3.

Fragment V'2. This piece (figure 20, *d*) was found in the street pavement in front of the house of Porfirio Villamil. (See figure 22, *u'*.) Only one glyph-block shows and that is incomplete. Judging from what is left, it was from 15 to 16 cm. high and 23 cm. wide. Part of the marginal band appears at the left and the adjoining side is plain, which makes this part of a Class 1 or a Class 2 stela. As the only satisfactory agreement in the above table is with the glyph-blocks on the side of Stela 20, and since Stela 20 belongs to Class 3, it may be eliminated.

Fragment V'3. This is a very small piece (figure 20, *f*), said to have been taken from the foundations of Stela 7 in 1918. It is 17 cm. wide and 15 cm. high. It looks as though it might be part of an Initial Series introducing glyph. (See figure 22, *h'*.)

Fragment V'4. This is a very small piece found 3 meters west of the foundation-stone of Stela 7 in the excavations of June 1919. (See figure 22, *n'*.)

Fragment V'5. This is a very small piece (figure 20, *g*) 16 cm. wide and 10 cm. high, with a plain marginal band along its left side. It was found in 1918 in the street pavement in front of the house of Porfirio Villamil. (See figure 22, *v'*.)

Fragment V'6. This piece (figure 20, *e*) was found in the mound of Stela 7 in 1918, 10 meters west of the foundation-stone of Stela 7 and 2 meters north. (See figure 22, *m'*.) The sides are plain and the front and back sculptured with two vertical columns of glyph-blocks, which show that it belongs to a Class 2 stela, and limits our possibilities, at least in so far as the above table is concerned, to Stelæ 24, 16, and 17. The width of the marginal band is 5 cm., the height of the glyph-blocks is 18 cm., and the width 25 cm. The relief is about 1 cm. in depth. At first sight it appears barely possible that Fragment V'6 might be a part of Stela 24, but a comparison of the thicknesses of the two, 29 cm. for Stela 24 and 39 cm. for Fragment V'6, precludes this possibility. It is possible, however, that Fragment V'6 and V'1 may have been parts of the same monument, the heights of their glyph-blocks being 17 and 18 cm., respectively, and their corresponding widths 25 and 24 to 25 cm., respectively.

Fragment V'7. This is a very small piece, which was found near the north end of the mound of Stela 7 during the excavations of June 1919. (See figure 22, *k'*.)

Fragment V'8. This is a very small piece found near V'6 and at the same time. (See figure 22, *o'*.)

Fragment V'9. This piece (figure 20, *b*) was found in the west wall of the house of Pedro Ramirez. (See figure 22, *t'*.) Parts of two glyph-blocks show and a plain marginal band to the left, the adjoining side being plain. The present maximum height of the glyph-blocks is 15 cm. and the maximum width 14 cm.

Fragment V'10. This piece (figure 20, *c*) was found in the street pavement in front of the house of Clementino Lopez. (See figure 22, *r'*.) All the surfaces, except the single sculptured one, show fractures. Only one glyph-

block is preserved and that only in part, present height 16 cm. and present width 23 cm. The relief is low and flat. The left half of the glyph appears to be the head of God C in the Schellhas classification. (Note the characteristic dots in front of the face.) The upper part of the right half might possibly be the day-sign Ahau, and the lower part the normal form for the cycle-sign.

Fragment V'11. This is a very small piece showing only two numerical dots. It was found on the mound of Stela 7 during the excavations of June 1919. (See figure 22, *i'*.)

Fragment V'12. This is a very small piece, which was found on the mound of Stela 7 during the excavations of June 1919. (See figure 22, *l'*.)

Fragment V'13. This piece was found in the south wall of the house of Clementino Lopez. (See figure 22, *s'*.) It has a plain marginal band on the left side, but the sculptured design to the right shows no interglyph spaces for its entire length of 34 cm., so that it is doubtful whether it was ever part of a glyph, being more like a decorative element.

Fragment V'14. This very small piece (figure 20, *h*) was found in the chamber underneath the foundation-stone of Stela 7 during the excavations of June 1919. It is now in the Peabody Museum of Cambridge, Massachusetts. (See figure 22, *j'*.)

The provenance of these 14 Fragments V', *i.e.*, in the immediate vicinity of several incomplete archaic stelæ, together with their indubitably archaic style, makes it probable, as already suggested, that some of them were originally parts of one or more of these early stelæ, which ones, however, it is impossible to say definitely with the insufficient evidence at hand. Other fragments will doubtless come to light from time to time as houses are pulled down in this quarter of the village, and it is therefore highly important that such pieces should be rescued and placed on record before they are destroyed. At any time other missing pieces may be recovered which will be found to fit with one or other of the above fragments or known stelæ, and which eventually may permit the reconstruction and decipherment of these early texts.¹

FRAGMENT S'.

Provenance:	Original position unknown. Found in the inclined facing on the eastern side of Mound 9 at the Main Structure. (See plate 6.)
Date:	Close of the Early Period.
Text, drawing:	figure 21.
Reference:	Gordon, 1896, p. 21.

¹This has already been exemplified in the cases of Stelæ 20 and 25. In 1915 the writer removed a medium-sized fragment from the west wall of the house of Pedro Ramirez (see figure 22, *y*) and had it taken to the cabildo. In March of the following year, during the course of tearing down the house of Felix Galván, just east of where the market now stands (see figure 22, *z*), another inscribed fragment was discovered in its foundations. These two pieces were found to fit together and to have been parts of Stela 20, the other piece of which was found by Spinden in still a third place, the house of Domingo Hernández, in 1912. (See figure 22, *w*.)

Again, one of the two pieces of Stela 25 (the left-hand fragment) was found on the mound of Stela 7 in 1918, and it was not until the following year that the other piece (the right-hand fragment) turned up at the house of Domingo Hernández. These two examples well illustrate the extreme importance of rescuing all inscribed fragments and placing them on record, since at any time other pieces may be located, which, fitting with those already recovered, may enable us to decipher their corresponding dates.

It is evident from the style of Fragments V' that they all belong to the Early Period, but there is less certainty as to the age of Fragment S'; while the latter shows secondary usage, it is not clear from its style whether it dates from the latter part of the Early Period or from the Middle Period.

Fragment S' (see figure 21) was found with its sculptured face turned down, on the inclined facing of the east side of Mound 9 at the Main Structure. In reshaping it for this use, part of the original design was broken off. In its present condition it is 55 cm. long, 36 cm. wide, and 13 cm. thick.

The single sculptured face preserved formed part of the right-hand side of some monument, as the original right-hand marginal band is still to be seen. (See figure 21.) All that is now left of the inscription, however, is part of one glyph-block. The first glyph is the sign found almost invariably with Secondary Series, which it usually precedes. The next is 11 uinals or 220 days. The last glyph—only part of which is preserved—is a day. The upper part of the day-sign may still be distinguished, as well as the upper part of its coefficient, which must have been either 2, 3, or 4, with the best reading at 2 or 3. A scroll, the significance of which is not clear, appears between the day-sign and its coefficient. The relief, though low and flat, is very well executed.

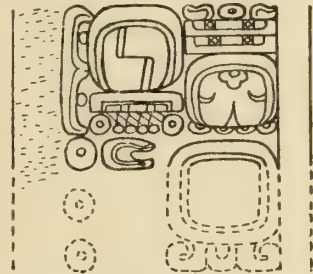


FIG. 21.—Inscription on Fragment S'.

Mound 9, where this fragment was found, probably was constructed during the early part of the Middle Period, since Stela 1, which was built into the second step of the stairway on its western side (see plate 6, and p. 163), records the hotun-ending 9.11.15.0.0.

This monument had a cruciform chamber underneath its foundations like the one under Stela 7, already described, which was opened by the Fourth Peabody Museum Expedition in 1895 (pp. 161, 162). The complexity of this chamber with relation to Mound 9 was such as to have necessitated its having been constructed at the same time that Mound 9 was being built; that is, at the same time Fragment S' was being reused in the inclined facing on the opposite side. This, therefore, would appear to make Fragment S' earlier than 9.11.15.0.0, but how much earlier it is impossible to say. Its stylistic characteristics find their closest affinities with sculptures dating from the close of the Early Period or the beginning of the Middle Period, to which katuns, 9.9.0.0.0–9.11.0.0.0, it is probably to be referred.

The two most striking points in connection with the monuments of the Early Period at Copan are (1) their provenance and (2) their periodicity, each of which will bear further elaboration, since upon the first rests the whole question of the earliest intensive occupation of the valley and the first center of population, and upon the second probably hinges the very meaning of the Maya monuments.

Concerning the first, we have seen that not one of the monuments of the Early Period may be regarded as *in situ*, strictly speaking, a number even showing evidence of secondary use in ancient times; further, that half of them are not even at the Main Structure, but at a smaller cluster of mounds, Group 9, 2 kilometers to the west, now the site of the modern village.

Of the twenty-two early monuments¹ under observation, only one, Stela P, was found standing, and even this, as already pointed out, must originally have been erected elsewhere; in short, with the possible exception of Stela 7, which, though fallen, is probably somewhere near its original position, none may be regarded as *in situ*, since none has been found in the position for which it was originally designed. In fact, more than a third show signs of secondary use before the city was abandoned, chiefly in having been used in the foundations of later stelæ, but in one case at least, Stela 21, in having been built into a later building (see p. 95).

If, then, none of the archaic monuments is now *in situ*, where were their original positions? Where was the earliest settlement in the valley on the basis of the dated remains? As already pointed out, twelve of the early monuments were found at Group 9, the site of the modern village, and two more in the immediate vicinity, at Groups 8 and 10, respectively. Six others are at the Main Structure, and two others some 4.5 kilometers to the west, at Group 12. That is, more than half of them are in one place, namely, Group 9, and that group not the one which later became the most important in the valley. This would tend to indicate that the first center of intensive occupation in the region was not at the Main Structure but at Group 9, 2 kilometers farther west.

A detailed study of the early monuments themselves further corroborates this hypothesis. Of the ten² *outside* the limits of Group 9, seven³ show unmistakable signs of secondary usage, and the remaining three⁴ are probably not *in situ*.

When we come to the twelve monuments⁵ at Group 9, on the other hand, only two, Stelæ 21 and 24, show unmistakable signs of secondary usage in ancient times, and although most of the remaining ten are now more or less mutilated, this can probably be charged in many if not most cases to modern vandalism rather than to reuse while the city was occupied.

Unfortunately the modern village was located on the site of this earliest group, its plaza probably coinciding with that of the ancient settlement. The modern settlement itself must date as far back as the eighteenth century, although until within the past four decades its growth has been slow. Galindo says there were only three houses west of the Sesesmil River, *i.e.*, where the village now stands, when he was at Copan in 1834, and both Stephens in 1839 and Maudslay in 1881 found it still a miserable collection

¹This does not include Fragments V' and S', as already stated in note 1, p. 55.

²Stelæ 16, 17, E, P, and 9, and Altars X, Y, A', J', and K', at the Main Structure, and Groups 8, 10, and 12.

³Stelæ 16 and 9 and Altars X, Y, A', J', K'.

⁴Stelæ E, P, and 17.

⁵Stelæ 7, 15, 18, 20, 21, 22, 24, and 25, and Altars L', M', P', and Q'.

of huts; finally, Cristina Ramirez describes it as having only a dozen odd *ranchos* scattered in small clearings in the bush during her childhood, about 1845 to 1860.

During the past ten years the writer has noticed the construction of a number of municipal buildings: a new town-hall, school-house, church, two bridges, market, and many new dwellings. This recent growth has been accomplished at the expense of the archæological remains at Group 9, however, and there can be no doubt that a number of archaic monuments have been broken up within the past thirty years to be used in the construction of these buildings. The fragments described as V' amply establish this. Even in the face of this extensive recent destruction, however, more archaic monuments have survived here than at any other group in the valley, and it therefore would appear probable that more stood here originally than anywhere else.

Weighing all the evidence, therefore, (1) the provenance of the early monuments, (2) their present condition, *i. e.*, whether they have been reused in ancient times or not, and (3) the dates inscribed upon them, the case may be summed up as follows:

The earliest center of population in the valley, at least the earliest characterized by sculptures in stone, what might perhaps appropriately be termed Old Copan, would appear to have been the group of mounds 2 kilometers west of the Main Structure, and now the site of the modern village, Group 9. Here the very earliest dated monuments are found, not only in greatest number, but also under conditions least indicative of secondary usage.

This group of mounds was built on an artificially leveled terrace cut from the lower slopes of the foothills on the northern side of the valley, probably growing up around the mound of Stela 7 as its most important ceremonial center.¹ (See plate 3 and figure 22). The little Rio Sesesmil nearby afforded a convenient and abundant water-supply, and the rich alluvial bottom lands to the east, south, and west, between the foothills and the Copan River, gave sufficient tillage area to have supported a not inconsiderable population. In short, the location was happy, and the community prospered, in all probability becoming the principal settlement in the valley as far back as the Early Period.

It is not unlikely that most of the monuments of this period—even those reused in later constructions in other parts of the valley such as Stelæ E and P at the Main Structure for example—were originally erected at Old Copan and were not removed to their present positions until after 9.10.0.0.0.

As early as the closing years of the Early Period, however, the practice of reusing early monuments in later constructions seems to have commenced. Thus, for example, Stela 24 was placed in the foundations of

¹In this connection it should be remembered, that in addition to Stela 7, which is the only monument of the Early Period at Copan which it is at all possible to regard as *in situ*, seven other early monuments: Altars Q' and P', and Stelæ 25, 20, 24, 15, and 18, as well as numerous fragments of early stelæ, have been traced to this same mound.

Stela 7 as early as 9.9.0.0. In the Middle Period Altars J' and K' were used in the foundations of Stela 10 as early as 9.11.0.0.0;¹ Fragment S' in Mound 9 by 9.11.15.0.0, and Altar X in the foundations of Stela 5, by 9.13.15.0.0 or 9.14.0.0.0. Possibly also Stela E and its altar may have been removed from Old Copan to their present positions about this time.

Coming down to the Great Period, Altar A' had certainly been reused in the Hieroglyphic Stairway before 9.16.5.0.0, and Stela P had probably been re-erected in the Western Court before 9.17.0.0.0. Similarly Altar Y had been reused in the foundations of Stela 4 and Stela 9 in the foundations of Stela 8 before 9.17.13.0.0. And finally, Stelæ 16, 17, and 21 can not be *in situ* where found, but must have come from some earlier group.

Old Copan doubtless shared the fate of many another city of antiquity in becoming even in ancient times a quarry for later constructions. The monuments were always made of the best material available—selected stones—and it is not surprising, therefore, to find that they have been extensively reused in later constructions, particularly in places where large, heavy slabs were required, as in the foundation-stones for other stelæ. In the case of a few monuments like Stelæ E and P, too fine to be broken up and used as building material or in the foundations of later stelæ, they were removed to the Main Structure, which by the end of the Middle Period had in turn become the principal settlement in the valley, and were re-erected there.

Classified according to the arrangement of their designs, the archaic stelæ may be arranged as follows:

1. Stelæ having inscriptions on one face only, the remaining three faces being plain: Stelæ 22 and 25.
2. Stelæ having inscriptions on two alternate faces, the remaining two faces being plain: Stelæ 16, 17, and 24.
3. Stelæ having inscriptions on all four faces: Stelæ 20, 15, 21, and 9.
4. Stelæ having inscriptions on three faces, the fourth being carved with the representation of the human figure: Stelæ 18, 7, E, and P.

There would certainly appear to be some chronological sequence in the origins of these classes, as we have already seen, since the monuments of Classes 1, 2, and 3 clearly have earlier dates than those of Class 4.

Turning to a more detailed consideration of the periodicity of the dates recorded, it will be found helpful if we first classify the monuments under observation into the two fairly obvious and generally recognized types—stelæ and altars.

Confining our attention for the present to the former, it will be found by referring to the preceding pages that in spite of some differences in the presentation of their several inscriptions, all stelæ of the Early Period at Copan, with two possible exceptions² have this one point in common—all record Initial Series.

¹The exact date of Stela 10 is 9.10.19.13.0 or 100 days earlier than 9.11.0.0.0.

²Stelæ 22 and 25 can hardly be regarded as exceptions to this statement, since each is too fragmentary to tell anything about what kind of a count had or had not been recorded upon it.

So universal indeed would seem to have been this practice that we may safely make it the basis for our first generalization, namely, that all stelæ of the Early Period at Copan present Initial Series.

The dates recorded by these different Initial Series are repeated for convenience in the following list, those marked (?) being open to some doubt, and those marked (??) being quite uncertain:¹

Stela 20	9.1.10.0.0	5 Ahau 3 Tzec (?)
Stela 24	9.2.10.0.0	3 Ahau 8 Cumhu
Stela 25	9.2.10.0.0	3 Ahau 8 Cumhu (?)
Stela 15	9.4.10.0.0	12 Ahau 8 Mol
Stela 17	9.6. 0.0.0	9 Ahau 3 Uayeb (?)
Stela 9	9.6.10.0.0	8 Ahau 13 Pax
Stela 16	9.7. 0.0.0	7 Ahau 3 Kankin (??)
Stela 18	9.7. 0.0.0	7 Ahau 3 Kankin (?)
Stela 7	9.9. 0.0.0	3 Ahau 3 Zotz
Stela E and altar	9.9. 5.0.0	9 Ahau 18 Uo
Stela P	9.9.10.0.0	2 Ahau 13 Pop

Of the foregoing Initial Series all those which have been surely deciphered—six out of the eleven—record hotun-endings in the Long Count; and in the doubtful cases, the hotuns suggested appear to be the best readings in each case. This condition may be made the basis for a second generalization, as follows: All stelæ of the Early Period at Copan probably recorded hotun-endings in the Long Count; that is, they were hotun-markers.

It is further apparent from the above list that of the four stelæ prior to 9.9.5.0.0, the dates of which are surely deciphered, 24, 15, 9, and 7, not one records a first or third hotun-ending, which condition may be summarized as follows: All stelæ of the Early Period at Copan prior to 9.9.5.0.0 probably record second and fourth hotun-endings only, that is, lahuntun and katun-endings, respectively.

It will be noted in the foregoing table that there are still eight lahuntuns and katuns after 9.1.10.0.0, the earliest date deciphered at Copan, for which no corresponding stelæ have yet been found, as follows:

9.2. 0.0.0	9.5.10.0.0
9.3. 0.0.0	9.7.10.0.0
9.3.10.0.0	9.8. 0.0.0
9.4. 0.0.0	9.8.10.0.0

Whether or not these particular hotuns were ever thus commemorated is uncertain. We have seen that a number of archaic monuments were reused in later constructions, and it is quite possible that future excavations may bring to light some of these missing stelæ. On the other hand, it is equally possible that many of the earlier lahuntun and katun-endings may have been allowed to pass without the erection of corresponding monuments. In the present state of knowledge such questions can not be answered; all that can be safely ventured in this direction is to point out the possibility—scarcely more—of their former existence.

¹In the generalizations which follow, Stelæ 21 and 22 have been omitted, as their inscriptions are so fragmentary as to make it impossible to determine whether these generalizations apply to them or not.

From the foregoing it seems safe, however, to make one other generalization concerning the stelæ of the Early Period which embodies the other three, as follows:

The stela type of monument was used at Copan, perhaps primarily, to mark the passage of time; while at first the period selected for this purpose seems to have been the katun and half katun, *i. e.*, the lahuntun, toward the close of the Early Period (9.9.5.0.0), it was replaced by the hotun or quarter katun, which from this time forward for over 250 years continued to be the chronological unit governing the erection of stelæ among the Maya. This condition, deducible from the monuments of the Early Period here at Copan, will be found to have prevailed not only during the Middle and Great Periods here, but also throughout the whole southern Maya field, during the Old Empire.¹

The second type of monument mentioned above, *i. e.*, altars, are all of one general class in the Early Period—rectangular blocks of stone decorated with intersecting bands, which cross each other at right angles, except the altar of Stela E, which is round.² Five and possibly six of them, Altars J', K', L', M', Q', and possibly P', have the grotesque serpent's head as their principal decoration, and three, Altars X, Y, and A', a number of small human figures in profile.³

We have just seen that the stelæ of the Early Period all record Initial Series. Now, an examination of the archaic altars discloses the fact that not a single one records a date of this kind. Here, then, is an important difference in subject-matter between the two. Stelæ in the Early Period at Copan seem to have been used to record the ends of successive hotuns, lahuntuns, or katuns in the Long Count. Altars do not. Stelæ frequently stand by themselves; altars very rarely do, being almost invariably associated with the larger type of monument. In the case of Stelæ E and I, the altars with which they are associated conclude their respective inscriptions. Strong reasons have already been advanced tending to show that Altars X and Y originally may have been associated with Stelæ 16 and 17. So general, indeed, seems to have been this practice that we may summarize the situation at Copan as follows: Most monuments of the altar type were originally associated with stelæ, each stela having its own particular altar.

The name "altar" has been generally applied to the smaller monuments found associated with the stelæ, and perhaps not without reason. It is obvious that they were subordinate to the stelæ, serving in some secondary capacity to them. Indeed, it is quite possible they may have been true altars, *i. e.*, places where sacrifices were offered and incense burned, perhaps

¹See Appendix VII and Morley, 1917b.

²This altar is probably the earliest of its type (see p. 110, note 1) which reached its highest development in the Middle Period. See also Chapter III, where it will be more fully described.

³Although the front and back of Altar A', which presented these small human figures, are now missing, their former existence can hardly be doubted, since the remaining surface is almost identical in treatment with the corresponding surfaces of Altars X and Y, which have these small human figures on their fronts and backs.

in connection with the erection of the hotun-markers or other religious festivals.

As this practice of associating altars with stelæ obtained generally throughout the Middle and Great Periods at Copan, it seems reasonable to assume that it also prevailed during the Early Period, even though no archaic stelæ or altars have yet been found *in situ*. If this is true, it is probable that some, at least, of the archaic altars already described were formerly associated with some of the archaic stelæ previously described.

Omitting for the moment the altar of Stela E and possibly Altars X, Y, and Q', as already accounted for, the last three with Stelæ 17, 16, and 15, respectively, there are left six altars (A', J', K', L', M', and P') which may have been associated with nine stelæ (20, 24, 25, 21, 22, 18, 9, 7, and P). Since Altars L', M', and P' and Stelæ 20, 25, 18, 21, 22, and 7 were all found at the same group, namely, No. 9, it is possible, indeed probable, that some at least of the former were originally associated with some of the latter.

On the other hand, some archaic stelæ and altars may have been lost or even destroyed. Thus, for example, it is possible that the stela formerly associated with Altar A' has not yet been found. Altars X, Y, and A' are very similar, differing from all the other archaic altars at Copan. Also, Stelæ 16 and 17, with which X and Y may have been associated, differ from all the other archaic stelæ now known. It seems not unlikely, therefore, that a stela like 16 and 17 may have been originally associated with Altar A', although such a one has not yet been found.

A tentative correlation of the stelæ and altars of the Early Period is suggested below:

Stela 24 with Altar L', M' or P'	Stela 16 with Altar Y
Stela 20 with Altar L', M' or P'	Stela 7 with Altar L', M' or P'
Stela 15 with Altar Q'	Stela E now associated with its original altar
Stela 25 with Altar L', M' or P'	Stela P
Stela 18 with Altar L', M' or P'	Stela ? with Altar J'
Stela 17 with Altar X	Stela ? with Altar K'
Stela 9	Stela ? with Altar A'

While it may be safely accepted as a general proposition that the archaic stelæ had certain definite altars originally associated with them, it is exceedingly hazardous in the absence of direct textual connection, as in the case of Stelæ E and its altar, or perhaps Stela 15 and Altar Q' for example, to go farther than to point out the possibility of such correlations, although some of the combinations suggested above doubtless formerly existed.

In closing the presentation of the inscriptions of the Early Period, it should be borne in mind that even though the total number of monuments under observation is relatively small, the tendencies which they exhibit—particularly the periodicity of the dates on the stelæ—are nevertheless highly significant, since they faithfully forecast the chronological practices of the later periods, and at the same time shed a ray of light upon the probable use, if not indeed upon the very meaning of the Maya monuments, as primarily marking the passage of successive chronological units, the hotuns, in the Long Court.

CHAPTER III.

THE INSCRIPTIONS OF THE MIDDLE PERIOD.

The Early Period at Copan doubtless merged into the Middle Period without any break in the sequence of the sculptured monuments. It must be admitted, however, that no sculptures have yet been found which may be assigned to the hotuns from 9.9.15.0.0 to 9.10.15.0.0¹ inclusive. Whether or not these particular hotuns were ever commemorated by the erection of stelæ and, if so, whether the stelæ marking them have been destroyed, or still lie buried somewhere in the valley, is unknown, although the latter contingency appears unlikely. It is possible, moreover, that after the erection of Stelæ 7, E and P, there was a lull in this highly specialized work, a pause before the tremendous outburst of sculptural activity which occurred in the hotun ending in 9.11.0.0.0, on which latter date no less than four, and probably seven, different stelæ were erected.

During this period the sculptors of the city may have been otherwise engaged, possibly in decorating some of the buildings then in course of construction. Whatever explanation is advanced to account for this break in the chronologic sequence of the monuments between the Early and Middle Periods, it is quite clear, from the monuments themselves, that there was no corresponding break in the art sequence. The earliest sculptures of the Middle Period present no radical departures from previous types; and it is clear from them that the ancient sculptors plied their art without the intrusion of alien influences sufficiently strong to modify perceptibly the stylistic development. The technique is a little more finished, the proportions of the human figure somewhat more natural, the treatment a trifle freer; in a word, practice was making every monument more and more perfect; progress was continuous and consistent; and stone-cutting had already become a fine art.

The crowning architectural achievement of the period seems to have been the building of the Great Plaza at the Main Structure, the laying-out of which took place some time after 9.12.5.0.0, as we have already seen, and probably prior to 9.13.10.0.0. This important construction may be said to mark the next great step forward in the history of the tribe or people who inhabited the Copan Valley.

By the middle of the Middle Period, the chief center of population had probably shifted from Old Copan (Group 9) to the Main Structure; and from this time onward the history of this branch of the Maya becomes the history of the Main Structure, and here in temple, palace, court, and plaza the record of its progress is magnificently set forth. The scattered occu-

¹There are some grounds for assigning Stelæ 12 and 2 to this hotun (see pp. 135, 140), but even if this were true, it would reduce the above hiatus of 25 years by only about 5 years.

pation of the valley was over, and the strong centralizing influence which had doubtless been present from the first had finally culminated in the foundation of a main group or chief city, toward the embellishment of which almost all the future efforts of the tribe, both in sculpture and architecture, were henceforth to be directed.

It should be borne in mind that this extensive building program probably absorbed the energies of a large part of the artisan class, and was not carried out without corresponding sacrifices in other directions. Thus, it is not surprising to find that when the construction of the Great Plaza was at its height, probably from 9.13.10.0.0 to 9.14.10.0.0, no stelæ or monuments of any sort, with the possible exception of Stela 5, were erected, at least none dating from this period has yet been found.

A similar hiatus in the monumental sequence seems to have prevailed in the Great Period during the building of the Hieroglyphic Stairway (9.15.5.0.0 to 9.16.5.0.0) and another during the construction of Temples 11, 21a, and 22 (9.16.10.0.0 to 9.17.0.0.0), although in the two latter cases a few minor monuments fill the gaps.

It seems possible, therefore, in view of the foregoing, that the lack of monuments which may be referred to the first four and last five hotuns of the Middle Period may be explained on the grounds that the artisan class, and more particularly the stone-cutters and sculptors, were engaged in other work, perhaps in the decoration of buildings then in course of construction.

There are 18¹ monuments now known which may be referred to the Middle Period. That excavation would materially increase this number appears doubtful, since there seems to have been little or no secondary use of monuments of the Middle Period; indeed, so far as the larger monuments are concerned, all the Middle Period stelæ are either *in situ* or have fallen just where they originally stood.²

In describing the earliest group of monuments of the Middle Period, *i. e.*, Stelæ 2, 3, 10, 12, 13, 19, and 23—only the first two of which are found at the Main Structure, and possibly may not be *in situ* there (see note 2 below)—there is some little difficulty in determining the best order of presentation, since all seven probably record the same date, namely, 9.11.0.0.0. On the basis of stylistic criteria, Spinden arranges them in the following order: 12, 10, 13, 19, 2, 3, and 23, as the following statement, prepared at the writer's request, will show:

"Stelæ 2, 3, 10, 12, 13, 19 and 23 at Copan bear inscribed dates that fall on or about Katun 11 of Cycle 9, and it is an interesting question what difference, if any, they show in style of sculpture. Unfortunately, only Stelæ 2 and 3 have full-length human figures, the other monuments being given over to hieroglyphs.

¹This does not include the altars of Stelæ I, 6, 13, and 19 and Fragment Y'. These altars are not counted as separate monuments in the above total, since each presents an inscription which is a continuation of that on the accompanying stela, the two inscriptions in each case being textually one, and the two monuments in each case being functionally one. Both the provenance and date of Fragment Y' are unknown. On stylistic grounds it has been referred to the Middle Period, a list of the monuments of which will be found in Appendix IX.

²Stelæ 2 and 3 at the Main Structure may be possible exceptions to this statement. Although they are certainly in the same positions which they occupied during the Great Period, it is possible, though hardly probable, that they may have been removed thither from some earlier outlying groups.

"Now, it has already been pointed out that on the whole the stelæ of Copan with human figures are remarkably homogeneous. The pose in all cases is essentially the same and the object carried in the arms is always the Ceremonial Bar. At other cities such homogeneity does not appear, since some figures are found in profile presentation and others in front view, while the Ceremonial Bar often gives way to the spear, the Manikin Scepter, etc. All the Copan stelæ (with the exception of Stela 23, which I have not seen) show the human figure in a stiff, formal, and symmetrical front-view presentation, with the heels together, the Ceremonial Bar held across the breast in the two arms, and with the eyes looking straight ahead.

"Details of dress, etc., are found upon closer analysis to vary considerably. Entire series of monuments are characterized by the practical repetition of certain complexes or arrangements of details, and in many instances, the finer criteria of sequence in style are based upon changes and developments within these complexes. To make the comparison in the present case more difficult, Stela 2 belongs to one series of monuments (18, 7, E, P, 2, and I), while Stela 3 may be placed in another series (3, 5, C, and 4). To be sure, the line of demarkation is not very clear and there are several similar features that bind Stelæ 3 and 5 to the former series.

"Stela 2 is found to resemble Stela P and Stela 3 to resemble Stela I. Now, Stela P is dated 9.9.10.0.0 and Stela I is dated 9.12.5.0.0. These respective resemblances and differences might indicate, then, that Stela 2 was carved somewhat earlier than Stela 3, since it inclines toward the earlier style. The lower half of Stela 2 is, in fact, almost a part-for-part copy of Stela P. In each we see a similar object under the elbows, a girdle, and jaguar-skin skirt with much the same details, an apron of exactly the same type, and hanging down on either side of the body a twisted serpent from the mouth of which hangs a tassel-like detail. It is somewhat more difficult to compare Stelæ 3 and I, because the former has two human figures instead of one and these two figures are found to differ considerably from each other. In all cases, however, the object under the elbows is wanting and the girdle is extended upward to cover the space. The aprons are of varying patterns and so can not be compared. The pendant objects at the sides of the body are much elaborated and modified, and as a result the surviving features of serpent heads can be made out with difficulty.

"When we turn to the general proportions of the body, we find a very considerable difference between Stelæ 2 and 3, with the former again belonging to the earlier style. In fact, in my first table of proportions (Spinden, 1913, p. 158), the proportions of Stela 2 are very close to those of Stela P, while those of Stela 3 seem to be even further advanced than Stela I toward the canon that ruled at Copan in the Great Period. To be sure, these measurements of Stela 3 are based on photographs and the sculpture itself is so mutilated that the points can not be exactly determined. But the difference between the proportions of Stela 2 and 3 are obviously great, especially in the length of the bust. Moreover, the relief is nearly twice as high.

"Earlier in the discussion it was stated that Stela 3 may be placed in a series with Stelæ 5, C, and 4. The basis of this grouping is the feature of small human figures by the side of the head-dress in the upper corners. These little figures hold Ceremonial Bars in their arms. 'Supernumerary' figures occur in several other instances without these Ceremonial Bars, the nearest approach to the style and arrangement of the series named above being seen in Stelæ E and I. Now, the Ceremonial Bars carried in the arms of the small figures are all of the rigid type, which, as far as the principal figure is concerned, does not appear at Copan till 9.15.0.0.0.

"Taken all in all, we have every reason to believe that Stela 2 was carved at a somewhat earlier time than Stela 3, but I should not care to express an opinion concerning the actual time difference, in view of our rather unsatisfactory data on the art of the Middle Period at Copan.

"We still have the hieroglyphs for study, and here we can extend our comparisons to the all-glyphic Stelæ 10, 12, 13, and 19. It is true that the hieroglyphs of this entire group belong to one general type midway between the flat angular glyphs of the Early Period (Stela 9, for instance) and the high and nicely modeled glyphs of the later, Great Plaza stelæ, beginning with Stela A. The glyph-blocks are in relief in a sunken panel. The details of the glyphs have a rounded delineation but an angular relief. The amount of relief varies somewhat, being lowest in the case of Stela 12. Particular points of similarity are seen in decorative details on bars and in the treatment of faces when these occur in the glyphs."

However defensible such a sequence may be on stylistic grounds, there are present other considerations of a chronologic nature which indicate the advisability of a slightly different order of presentation here. It will be found in the following pages that these seven monuments, chronologically considered, divide naturally into three groups, as follows: Stelæ 12 and 2, which may be a *hotun* earlier than the others, Stelæ 10, 19, and 23, and Stelæ 13 and 3; and since Stela 12, stylistically considered, is clearly the earliest, and Stela 3, on the same grounds, is as clearly the latest, it seems best to follow this latter order in describing them.

STELA 12.

Provenance:	On the western slope of the mountain, 2.5 kilometers east of the Main Structure at Group 3, 188.6 meters ¹ above the level of the Great Plaza. (See plate 3.)
Date:	9.10.15.0.0 6 Ahau 13 Mac, or 9.11. 0.0.0 12 Ahau 8 Ceh. ²
Text, (a) photograph:	plate 17.
(b) drawing:	plate 17.
References:	Galindo, 1834, Appendix XI, p. 599. Galindo, 1835a, pp. 548, 549. Gordon, 1896, p. 29. Spinden 1913, p. 160, and table 1.

Both Stelæ 12 and 10 seem to have been discovered by Galindo; at least he was the first to note their occurrence: "On neighboring hills stand, one to the east [Stela 12] and the other to the west [Stela 10] of the city, two obelisks, containing only hieroglyphics in squares; these obelisks, like the generality of those in the city, are painted red, and are thicker and broader at the top than at the bottom."³ He describes Stela 12 as fallen and broken, even in his time.⁴

Stela 12 is 3.25 meters high, 61 cm. wide, and 52 cm. thick. Originally it stood upon an artificially leveled terrace 8 meters long by 5 meters wide⁵ on the western slope of the mountain, about 2.5 kilometers east of the Main Structure at Group 3. (See plate 3.) The writer first examined this monu-

¹This elevation was taken from Gordon's unpublished notes in the Peabody Museum.

²For other monuments recording this same *hotun*-ending, see Appendix VIII.

³Galindo, 1835a, pp. 548, 549.

⁴*Ibid.*, 1834, Appendix XI, p. 599.

⁵*Ibid.*, p. 599.

ment in 1910, but was then unable to find the bottom half. In 1915, however, all pieces except the very top—a fragment which must have been about 25 cm. high, and which Galindo also reports as missing in 1834—were examined, and the date determined for the first time.

All four sides are inscribed with glyphs, which still retain much of their original coating of red paint.¹ This has given rise to the name *Piedra Pintada*—painted stone—by which the monument is known locally. On the basis of the arrangement of the design, Stela 12 may be referred to Class 3.

A line drawn from Stela 12 to Stela 10, the western *Piedra Pintada*, similarly located on the summit of a hill 7 kilometers west of Stela 12, passes across the southern end of the Acropolis at the Main Structure, bearing N. 86° 46' W. (magnetic).² (See plate 3.)

Whether this is the result of intention or of chance, it is, of course, impossible to say, although it is interesting to note in this connection that both Stelæ 10 and 12 antedate the earliest monument³ which may be regarded as being surely *in situ* at the Main Structure, and consequently they might have had something to do with the location of the Acropolis in its present position, perhaps in determining a certain line of sight of especial astronomical or ceremonial importance at the time.

At the suggestion of Prof. R. W. Willson, of the Harvard Astronomical Department, certain observations were made on Stela 10 as observed from Stela 12, namely, (1) the angle of Stela 10 above the valley floor, taken at the river-level at the base of the Main Structure; (2) the compass-bearing of Stela 10 from Stela 12; and (3) the bearing of the sun at the instant of setting on any given day. These readings were taken just before and at sunset on March 8, 1916, and were turned over to Professor Willson, who has placed the following statement concerning them in the writer's hands:

"If, as you say, the two stelæ are at about the same height above the river, namely, 450' [137 meters],⁴ the western column being a little higher, I find from your observations that the true bearing of the western (Stela 10) from the eastern (Stela 12) is N. 81° 47' W.

"Accepting this as the true bearing, the sun, as seen from Stela 12, would set behind Stela 10, 20.3 days after the vernal equinox and 20.6 days before the autumnal equinox (*i. e.*, April 9 and September 10 of the present year, 1916 (Gregorian Calendar).

"From Mr. Carpenter's observation of the magnetic bearing of Stela 10, W. 4° 25' N., and the true bearing, N. 81° 47', we find the present magnetic declination to be 3° 48' east of north.

"Gordon gives the magnetic bearing of this line as N. 86° 46' W. and the declination 6° E., which makes the true bearing N. 80° 46' W., which would give for

¹So far as known, all Maya inscriptions were originally painted red, although other subjects, such as the human figure, and its elaborate clothing, plumed head-dresses, jaguar-skin capes, and the like, appear in a variety of colors, including several other shades of red, brown, yellow, blue, green, and black.

²The magnetic declination of Copan is 6° east. See Gordon, 1896, p. 29.

³Stela 1, the date of which is 9.11.15.0.0. See p. 161.

⁴Gordon's notes in the Peabody Museum give these elevations as Stela 10, 228 meters, and Stela 12, 188.6 meters above the level of the Great Plaza at the Main Structure.




the date of sunset behind Stela 10, 23 days after the vernal and 23 days before the autumnal equinox."¹

Gordon's reading gives the date of the sun setting behind Stela 10 as seen from Stela 12 as three days later in the spring, *i. e.*, on April 12, and three days earlier in the fall, *i. e.*, September 7, a fairly close agreement with the readings obtained in 1916.

As yet we know too little about the exact correlation of the Old Empire chronology with our own to name the Maya equivalents of April 9-12 and September 7-10, during the Old Empire, and moreover, since the Maya only used a 365-day year, these days were continually shifting. In Bishop Landa's time the Maya year began with July 26 (N. S.), *i. e.*, 0 Pop fell on July 26;² and on this basis of correlation these eight possible dates were 17 Mac, 18 Mac, 29 Mac, or 0 Kankin; or 3 Zip, 4 Zip, 5 Zip, or 6 Zip of the Maya year, none of which, however, appears on either monument, although the Initial Series terminal date on Stela 12 (13 Mac) is only 4 days earlier than the first of these.

Although the above results are unsatisfactory, the writer believes these two monuments may yet be found to record important and recoverable astronomical data, possibly even sufficient to permit an exact correlation of Maya and Christian chronology.³

The upper part of Stela 12, a piece about 25 cm. long, as already mentioned, is missing. The front of this fragment presented the upper half of the Initial Series introducing glyph, the lower half of which is shown in plate 17. The next glyph, A3, plate 17, is effaced; it doubtless recorded "9 cycles." Fortunately the katun coefficient, B3a, is one of the clearest glyphs in the entire inscription, being unmistakably 10, which restricts the range of possible dates for this Initial Series to a definite 20-year period in the Long Count.

Although the remaining terms of this number, the tun, uinal, and kin coefficients in A4a, B4a, and A5a respectively are sufficiently clear, their forms are so unusual that it is better to  attempt first to identify the Initial Series terminal date recorded in  B5, A9. This is 6 Ahau 13 ?, all being perfectly clear but the month-sign. 

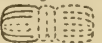
The next point is to determine at what places in Katun 10 the day 6 Ahau could have had a month coefficient of 13. Referring to Goodman's tables, it will be found that there are only seven places where these conditions are fulfilled, as follows:

9.10. 2.13.0	6 Ahau 13 Zac	9.10.15. 0.0	6 Ahau 13 Mac
9.10. 6. 6.0	6 Ahau 13 Zip	9.10.18.11.0	6 Ahau 13 Tzec
9.10. 7. 1.0	6 Ahau 13 Pax	9.10.19. 6.0	6 Ahau 13 Cumhu
9.10.10.12.0	6 Ahau 13 Mo'		

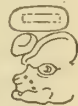

¹This extract is from a letter written under date of November 29, 1916.

²Landa says the Maya year began on July 16, but as he wrote between 1561 and 1566, the Old Style was still in use, and in order to reduce this reading to its present equivalent it is necessary to add 10 days, July 16 of his time being July 26 to-day.

³This problem of the exact correlation of Maya and Christian chronology will be found reviewed in Appendix II.

A further inspection of the partially destroyed month-glyph in A9 discloses the fact that its superfix is of this form . A comparison of this remnant with the signs for the seven months in the above dates, or indeed with the signs for all the other divisions of the year, shows that it could hardly have been other than the sign for Mac; indeed, this particular superfix is the essential and only constant element of the sign for Mac.¹

On the basis of this resemblance alone we are probably justified in accepting the fifth value above, *i. e.*, 9.10.15.0.0 6 Ahau 13 Mac, as the date of this Initial Series, but when we find further that this date is the only one of the seven here possible which ends a hotun or even a tun in the Long Count, the chances in its favor are enormously increased; and finally, as will appear later, when it is found that the closing date on this monument is exactly the same as the final dates on Stelæ 2, 3, 13, and 23, and further, that the Initial Series itself is probably the same as the Initial Series of Stela 2, probability virtually becomes a certainty.

It may be objected that A4a, B4a, and A5a bear little resemblance to known forms for 15, 0, and 0 respectively. But A5a can be nothing but 0, since the day-sign in B5b is surely Ahau;² and furthermore, when the kin coefficient is 0, the uinal coefficient is almost invariably the same.³ Finally, the tun coefficient in A4a is surely 10 or above, being composed of the death's head, 10, and a superfix. In view of the probable accuracy of the reading suggested, this sign must stand for the number 15. The superfix is a . Since the whole glyph must mean 15 tuns, these lines may be explained  in one of two ways only. Either they are the outlines of a single bar, 5, or else they are parts of the interior lines of the tun-sign, which would then make this glyph the regular head-variant for 15 (see Bowditch, 1910, plate 17, and Morley, 1915, figure 53 b-c).

¹The only constant element in the sign for Mac would appear to have been the superfix, and even this is wanting in the next to last variant on the right to



last variant on the right from Aguas Calientes. (See plate 1.)

The first and second examples above, from Tikal, Altar 5 and Copan, Altar W, respectively, are the commonest form—a grotesque head surmounted by the characteristic superfix. The third and fourth, from Piedras Negras, Stela 16, and Naranjo, Stela 14, respectively, have an entirely different main element in which an oval is the most conspicuous feature, but with the same superfix as in the first two. The fifth and sixth variants, both from Yaxchilan, Lintels 33 and 43 respectively, are again different, though the superfixial element still remains the same in each.

The seventh variant, from Stela 1 at Aguas Calientes, does not have this characteristic superfix, but on the contrary resembles very closely the forms for Mac found in the Dresden Codex, one of which from p. 50 of that manuscript is shown as the last variant above. Both forms have the same kind of a subfix—a comb-like element—and both the same kind of a main element, apparently a variant of the sign for Imix.

In general, however, the superfix appearing in the first six examples above may be said to be the determining characteristic of this glyph, and its presence in A9b on Stela 12 establishes, practically beyond doubt, the identity of this glyph as a sign for Mac. For other examples of the sign for Mac, see Appendix X, and also Bowditch, 1910, plates 8 and 10.

²When the day-sign of any date is Ahau, the kin coefficient can only be 0. See Morley, 1915, p. 77.

³That is to say, when a day Ahau was recorded in the inscriptions, it almost always stood at the end of an even tun, hotun, lahuntun, or katun of the Long Count, and not at the ends of the intermediate uinals. A few cases of the latter, however, are known, as, for example, the Initial Series of Stela 1 (p. 162) and the Initial Series of Stela A (p. 221).

The former explanation involves an entirely new feature in Maya notation, namely, that under certain conditions a bar-and-dot numeral could be combined with a head-variant numeral, making a composite numeral. The cases where such combinations occur have been exhaustively presented under the East Altar of Stela 5 (see pp. 166-170) and their discussion will not be anticipated here. Suffice it to say in the present connection that A4a, explained on either basis, stands for the number 15; and further that, all things considered, it is perfectly safe to accept 9.10.15.0.0 6 Ahau 13 Mac as the Initial Series of Stela 12. Before attempting to decide whether or not this was the contemporaneous date of the monument, however, let us continue the inspection of the text.

On one of the narrow faces at C10, D11 (plate 17, four glyphs at bottom) is the following Period Ending date: "12 Ahau 8 Ceh, End of Katun 11":

C10	12 Ahau
D10	8 Ceh
C11	End of
D11	Katun 11

Although the line of fracture passes through C10, D11, this reading is perfectly clear. We have, then, on Stela 12, the record of two successive hotuns in the Long Count, 9.10.15.0.0 and 9.11.0.0.0. Ordinarily, indeed in the very great majority of cases, the final date on a monument corresponds with the date of its erection or formal dedication, and if this general rule applies to Stela 12, it may be referred to the end of Katun 11 without further question. Unfortunately there is present another factor tending to complicate the question and possibly to abrogate the general rule in this connection. However, since this matter can not be adequately presented until the other six monuments, which may record the date 9.11.0.0.0, have been described, further discussion of Stela 12 and its date will be deferred until later. (See pp. 159-161.)

STELA 2.

- Provenance: At the southern base of the L-shaped extension on the north side of Mound 10 of the Acropolis at the Main Structure. (See plate 6.)
- Date: 9.10.15.0.0 6 Ahau 13 Mac.
9.11. 0.0.0 12 Ahau 8 Ceh.¹
- Text, (a) photograph: plate 18.
Maudslay, 1889-1902, vol. 1, plate 103, a.
- (b) drawing: plate 18.
Maudslay *ibid.* plates 101 and 102 (101 front only).
- References: Bowditch, 1910 pp. 186, 196.
Gordon, 1896, insert after plate 1.
Maudslay, 1889-1902 vol. 1 of text, p. 66.
Spinden, 1913, pp. 157-159, 164, and table 1.
Stephens 1841, vol. 1, p. 134.



Stela 2 is lying at the southern base of the L-shaped extension of Mound 10 in a small court into which the passageway between Mounds 9 and 10 emerges. It is 3.81 meters long, 81 cm. wide, and 56 cm. thick. A


¹For other monuments recording this same hotun-ending, see Appendix VIII.


human figure is sculptured on the front, the back and sides being inscribed with glyphs. On the basis of the arrangement of the design it may be assigned to Class 4.

The Initial Series is recorded on the back, the Initial Series introducing glyph appearing in A1-B2. The cycle-sign and coefficient in A3 are entirely effaced; the latter (A3a) was doubtless 9. The katun coefficient is partially effaced, though fortunately enough remains to show that it was the death's head, *i. e.*, the numeral 10.

The tun-sign and coefficient in A4 are again entirely effaced, and the uinal coefficient in B4a almost so. The uinal-sign (B4b) is the full-figure variant, found also on Stela 12 in the corresponding position (see plate 17, B4b), and also on Stelæ 24 and 15.

The kin-sign and coefficient and the day-sign and coefficient, A5 and B5 respectively, are very clear. As the latter is surely 6 Ahau, the former must be 0 kins. Quite irregularly this sign for 0 seems to have as its essential element the fleshless lower jaw,  usually the determining characteristic of the head for 10. That this  glyph can only be 0, however, has just been explained, and we may conclude, therefore, that the fleshless lower jaw sometimes stands for 0 as well as for 10.

The only other places known where this element has this value are on Stelæ 19 and 3 here at Copan, which also date either from 9.11.0.0.0 or very near thereto. In Stela 19, the kin coefficient, like that of Stela 2, also has the fleshless lower jaw  and since its day-sign is also distinctly Ahau, this element can only have the value 0 as here on Stela 2.

The other example of this use of the fleshless lower jaw for 0 is found on Stela 3. Here the Initial Series terminal date is very clearly 12 Ahau 8 Ceh, and although the Initial Series number itself is partially effaced, the record of an "End of Katun 11" after the Initial Series terminal date indicates that this 12 Ahau 8 Ceh could have been none other than 9.11.0.0.0 12 Ahau 8 Ceh. Now, on Stela 3 (plate 19, a, A3a u. h.), the tun coefficient of the Initial Series number  has the same fleshless lower jaw as in the other two examples just cited, and the accompanying calculations show that it also could only have stood for 0.

It seems safe to conclude, therefore, from the foregoing evidence that on these three monuments at least, the fleshless lower jaw was used to denote 0 instead of 10. This unusual practice, however, does not appear to have prevailed at any other Maya city, and here at Copan only in the case of these three monuments, all of which date from the same hotun or two consecutive ones; and it is much more likely to have been due to the influence of a single sculptor, the idiosyncrasy of one priest, rather than to any fundamental duality in the meaning and significance of this element.

Returning to our text in plate 18, the Supplementary Series will be found following the day of the Initial Series terminal date, *i. e.*, at A6-B7a u. h.,

the latter sign being Glyph A of the Supplementary Series, here shown with a coefficient of 10. Unfortunately, the next glyph resembles none of the known forms for the month-signs and it has, moreover, a coefficient of 9. As the month coefficient corresponding to any day Ahau can only be 3, 8, 13, or 18, it is probable that the sign in B7a l. h. is not the month-sign of the Initial Series terminal date. Although a slight digression will here be necessary to prove this point, it seems best to introduce the matter at this time.

The usual position of the month-sign in Initial Series terminal dates is immediately following the last glyph of the Supplementary Series, for which, on the basis of this regularity, the writer at one time suggested the name "month-sign indicator," but which is now generally known as Glyph A of the Supplementary Series.¹ If it is not found here, it usually follows the day of the Initial Series terminal date, wherever that may be. In a very few texts the month-sign of the Initial Series terminal date is suppressed altogether, and there is recorded in its place a glyph unlike any of the known month-signs, but which has a coefficient. This last seems to be the case here on Stela 2.

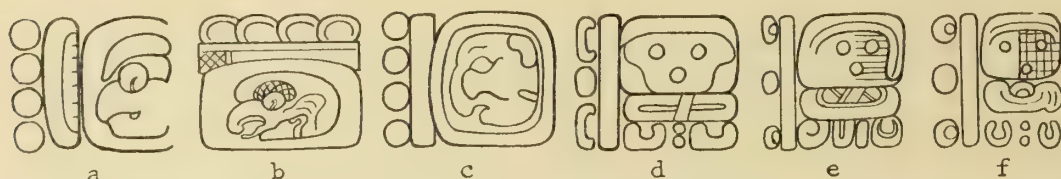


FIG. 23.—Glyphs used in place of the month-signs of the Initial Series terminal dates on: *a*, Copan, Stela 2; *b*, Copan, Stela 3; *c*, Copan, Altar H'; *d*, Yaxchilan, Stela 1; *e*, Yaxchilan, Stela 11; *f*, Yaxchilan, Lintel 29.

Figure 23, *a*, is the sign immediately following Glyph A of the Supplementary Series on Stela 2. This sign is a grotesque head with a coefficient 9, and can not be the month-sign of the Initial Series terminal date, as we have seen. The second example, figure 23, *b*, is from Stela 3, also here at Copan, where it occurs immediately after Glyph A of the Supplementary Series, the month-sign of the Initial Series terminal date again being suppressed, as in the case of Stela 2. Here again both the grotesque head and its coefficient are the same. A third possible case on Altar H', also here at Copan, is shown in figure 23, *c*. The grotesque head appears to be the same and the coefficient is again 9, but this glyph does not replace the month-sign, which occurs in its regular position after Glyph A of the Supplementary Series, but it follows the day of the Initial Series terminal date, for which reason it is offered only as a doubtful case in the present connection.

The only other parallel elsewhere of which the writer is aware occurs at Yaxchilan (see plate 1) on Stelæ 1 and 11 and Lintel 29, figure 23, *d*, *e*, and *f*, respectively. In these three cases the glyphs replacing the month-signs of the Initial Series terminal dates occur immediately after their respective Glyphs

¹The month-sign of the Initial Series terminal date follows Glyph A of the Supplementary Series, the so-called "month-sign indicator," in about four out of every five Initial Series; any other position, therefore, is exceptional (Morley, 1916, p. 368, note 1).

A of their corresponding Supplementary Series, the month-signs again being suppressed. In all three, both the main signs (each containing three small circles), and the coefficients are the same, the latter being 6. Although both coefficient and glyph differ from the one at Copan, the use appears to be so similar at both places that even although the meanings of these passages are unknown the parallel appears complete.

The foregoing was introduced to show that the glyph recorded after Glyph A of the Supplementary Series on Stela 2, *i. e.*, B7a l. h., was not the month-sign of the Initial Series terminal date, and furthermore, that the month-sign is probably suppressed in this inscription as in the case of Stela 3. Let us gather together, therefore, the data surely deciphered in connection with this date:

A1-B2	Initial Series introducing glyph
A3	Effaced, doubtless 9 cycles
B3	10 katuns
A4	Effaced
B4	? uinals
A5	0 kins
B5	6 Ahau

As the day 6 Ahau occurred 27 times in Katun 10, before attempting to decide between these 27 possibilities, it is best to continue the examination of our text.

On the west side of Stela 2 at c5b, c7a, is recorded the Period Ending date "12 Ahau 8 Ceh End of Katun 11" as follows:

c5b	12 Ahau
c6a	8 Ceh
c6b	End of
c7a	Katun 11

which may be transcribed into its corresponding Initial Series thus: 9.11.0.0.0 12 Ahau 8 Ceh.¹ Maudslay's drawing of this text has two serious errors. First, the day coefficient (c5b) is shown as 13 (1889-1902, vol. 1, plate 102, glyph 34, right half), while in the original it is very clearly 12 (see plate 18), the middle dot being noticeably smaller and without decoration; and second, the katun coefficient (c7a) is shown as 13 (*ibid.*, Glyph 36 left half), whereas in the original it is unmistakably 11, the two outside dots being smaller than the middle one, and again without decoration.²

These two errors, of course, materially change the resulting date here and have led Bowditch to misread this Period Ending as 9.13.0.10.0 13 Ahau 8 Ceh.

"On Stela 2 of Copan we find in F5 [c5b here] 13 Ahau with a knot between the day and the number. . . . On E6 [c6a here] we have 8 Ceh and on E7 [c7a here] we find the katun glyph with 13 and no 'ending' sign. 13 Ahau 8 Ceh is 9.13.0.10.0, while on F6 [c6b here] is the glyph given on plate 19, Hand Signs No. 4."³

¹For transcribing Period Ending dates into their corresponding Initial Series, see Morley, 1915, pp. 222-233.

²Both the day and katun coefficients in this text are very unusual. Where plain dots and ornamented ones both occur in the same number, the former are almost always numerical and the latter ornamental. The reverse is true here, however.

³See Bowditch, 1910, p. 186.

So far as the writer is aware, the ends of uinals are never recorded as Period Ending dates, and for this reason alone, if for no other, the reading 9.13.0.10.0 13 Ahau 8 Ceh is open to serious question. Its rejection, however, rests on firmer grounds, as we have already seen, and there is no doubt but that the same hotun-ending is recorded here as that on the corresponding side of Stela 12, namely, 9.11.0.0.0 12 Ahau 8 Ceh.

But there are other resemblances between the inscriptions on Stelæ 12 and 2, as the following comparison will show:

Stela 2.		Stela 12.	
B _{3a}	Katun coefficient 10, head-variant numeral	B _{3a}	the same
B _{4b}	Uinal-sign represented as a full-figure variant	B _{4b}	the same
A _{5b}	Kin-sign with banded head-dress	A _{5b}	the same
B ₅	6 Ahau, head-variant numeral and profile head day-sign	B ₅	the same
B _{7a} u. h.	Glyph A of the Supplementary Series with a coefficient of 10	B ₈	the same
c _{5b}	12 Ahau	C ₁₀	the same
c _{6a}	8 Ceh	D ₁₀	the same
c _{6b}	End of	C ₁₁	the same
c _{7a}	Katun 11	D ₁₁	the same

Even such details as the ending-signs, *i. e.*, c_{6b} and c₁₁ respectively, and the coefficients of Glyph A of the Supplementary Series, *i. e.*, B_{7a} u. h., and B₈, respectively, are identical in both texts. But we have already seen that the Initial Series of Stela 12 records the date 9.10.15.0.0 6 Ahau 13 Mac, and since the Initial Series of Stela 2 supports this reading so far as it goes, it seems not unlikely, in view of these other close similarities, that this was also the Initial Series of Stela 2.

As to which of the two dates recorded on Stela 2, *i. e.*, 9.10.15.0.0 and 9.11.0.0.0, was its contemporaneous date, further discussion of this point will be deferred until after the descriptions of Stelæ 10, 19, 23, 13, and 3. The inscription on Stela 2 is composed of 19+11+11=41 glyph-blocks, the Initial Series introducing glyph occupying the space of 4 glyph-blocks.

An interesting side-light on technical limitations in stone carving at Copan is afforded by this monument. In the Initial Series introducing glyph, just to the left and a little below the variable central element, there appears a large circle without interior decoration. (See plate 18.) In the original this is a large inclusion of harder volcanic rock, which the ancient sculptors found themselves unable to carve, probably because their chisels were made of the same material or of one no harder.

The best they were able to accomplish in this direction was to reduce the inclusion so that it was flush with the face of the stela; and no attempt appears to have been made to carry the design across its refractory surface. On the contrary, the inclusion appears to have influenced the design. The element to the right and slightly above it is a head facing to the *right*. Further examination shows this head is the variable element of the Initial Series introducing glyph. So far as the writer knows, this is the only instance on record of a head in this position facing to the right, all others facing to the left.

The reason for this departure from the regular practice would appear to have been due to the presence of this inclusion, which would have seriously distorted the proportions of a head facing to the left. As arranged here, however, the inclusion may conceivably be a part of the ear-plug; in short, it has directly coerced the arrangement of the subject-matter.

Stela 2 is the first monument since Stela P which represents the human figure, and it is interesting to note in this connection that in the 25 or 30 years which elapsed since the erection of the latter little progress had been achieved in handling this difficult subject. Says Spinden, in describing this monument:

"Stela 2 is another slender stela, although the slenderness is not so marked as in the preceding one (Stela P). The body maintains the same pose except that the forearms are not held nearly so vertical.¹ The details of dress are remarkably similar, although in general somewhat more complicated. The torso is broader and the legs shorter and more muscular. The relief is somewhat higher than on Stela P, but is hardly less angular. Both of these stelæ show the outlines of the shoulders and waist clearly."²

STELA 10.

Provenance:	On the summit of a hill 4.5 kilometers west of the Main Structure at Group 12, 228 meters above the level of the Great Plaza. ³ (See plate 3.)
Date:	9.10.19.13.0 3 Ahau 8 Yaxkin.
Text, drawing:	plate 15, <i>a</i> . Maudslay, 1889-1902, vol. 1, plate 111.
References:	Galindo, 1834, Appendix XI, p. 599. Galindo, 1835 <i>a</i> , pp. 548, 549. Gordon, 1896, p. 29. Maudslay, 1889-1902, vol. 1 of text, pp. 16, 68. Spinden, 1913, pp. 160, 164, and table 1.

Stela 10 lies flat on the ground on the summit of a hill about 4.5 kilometers west of the Main Structure, at Group 12, 228 meters above the level of the Great Plaza, and commands a beautiful view of the valley. The crest of the hill has been leveled off, and a retaining-wall of rough-laid stones built along the edges makes a sort of platform of the top. The monument is 2.98 meters long, 66 cm. wide, and 43 cm. thick. All four sides are covered with glyphs, in which respect it belongs to the same class, 3, as Stelæ 20, 15, 21, 9, and 12. It was painted red, and much of the coloring matter still adheres to the surface of the stone; hence the name *Piedra Pintada*, by which the monument is known locally. It was first reported by Galindo.

There is an Initial Series introducing glyph on the north side, A1,⁴ followed by an Initial Series at A2*a*-A4*a*, A9. Unfortunately the top glyph on the

¹The position of the forearms of the human figures on the Copan stelæ is one of the surest criteria of age. In the earlier stelæ showing the human figure the forearm is held almost vertical, later it gradually drops until as here it is less than 45° with the horizontal. Finally, in the Great Period, it is held horizontally in a perfectly natural and easy position. See Spinden, 1913, p. 24.

²Spinden, 1913, p. 157.


³This elevation was taken from Gordon's unpublished notes in the Peabody Museum.

⁴The opening glyph in Maudslay's drawing (1889-1902, vol. 1, pl. 111).

opposite side (D1)¹ is entirely effaced, and it is impossible to tell whether it had been an Initial Series introducing glyph or not.

Maudslay's drawing of this Initial Series is extremely faulty; indeed, it is the most inaccurate of all his reproductions of the Copan inscriptions. In the first place, the cycle coefficient in A2a u. h. is shown with a clasped hand on the lower jaw, which would signify 0 cycles. A study of the original, however, failed altogether to establish the presence of this element. On the contrary, the dots of the head for 9 could be clearly distinguished, the dots not only being double outlined, but also cross-hatched.

His next error is in the katun coefficient (A2b u. h.), which he shows as 15, *i. e.*, as 3 bars, whereas the original has but 2 bars. This error doubtless arose through his mistaking the upper part of the head-variant representing the katun for a bar. The reading 10, however, is quite clear in the original. His drawing of the tun coefficient (A3a u. h.) while not actually inaccurate, is far from clear. Although the fleshless lower jaw of the head for 10 appears very clearly, he does not show the small double-outlined and cross-hatched dot denoting 9, of exactly the same type as those in the cycle coefficient just above. The tun coefficient, therefore is unmistakably 19.

The uinal coefficient (A3b u. h.) as drawn by Maudslay is obviously incorrect. It is 18, an impossible value for the coefficient of the second period.² An examination of the original, moreover, shows that it is 13. Maudslay fell into the same error here as he did in the case of the katun coefficient, namely, in identifying the upper part of the period-glyph as a bar, giving 18 instead of 13. The two upper bars appear like this , whereas the upper part of the uinal head is rounding and lacks the four slanting interior lines. The kin coefficient (A4a u. h.) is 0, and the Initial Series terminal date (A9), 3 Ahau 8 Yaxkin. Fortunately, the latter is very clear both in the Maudslay drawing and the original, and proved a valuable check in the final decipherment of this date. The Initial Series here recorded, therefore, is 9.10.19.13.0 3 Ahau 8 Yaxkin, as follows:

A1	Initial Series introducing glyph
A2a	9 cycles
A2b	10 katuns
A3a	19 tuns
A3b	13 uinals
A4a	0 kins
A9a	3 Ahau
A9b	8 Yaxkin

In addition to the Initial Series, there are a few other recognizable glyphs in the text, though of unknown meaning. c8³ would appear to be a day-sign, perhaps Ahau, although if so its coefficient can not be 18.⁴ D3⁵ is the variant

¹Glyph 29, Maudslay's numeration (1889-1902, vol. 1, pl. 111).

²There are 18 uinals in 1 tun the period next higher, but as 1 tun is never recorded as 18 uinals in the inscriptions, 18 is an impossible value for the uinal coefficient. (See Morley, 1915, p. 110.) Bowditch (1910, pp. 41, 42) notes an apparent exception in the Dresden Codex, where in a series of numbers on pp. 71-73, the number 390, *i. e.*, 1.1.10, is written 19.10, that is, 19 uinals and 10 kins.

³Glyph 24, Maudslay's numeration (1889-1902, vol. 1, pl. 111).

⁴The day coefficients can only be one of the numbers 1 to 13 inclusive. See Morley, 1915, p. 41. If this glyph is a month-sign, the coefficient 18 would be possible.

⁵Glyph 31, Maudslay's numeration (1889-1902, vol. 1, pl. 111).

of the tun-sign used in hotun-ending declarations. As its coefficient is effaced, it is barely possible a hotun-ending may have been recorded here. E1, F1, and F2¹ appear to record a Secondary Series, although the writer has been unable to connect it with the Initial Series.

The first glyph (E1 u. h.) looks like 5 kins and the next (E1 l. h.) may be the day-sign Akbal. The next (F1 u. h.) is 0?, and the next (F1 l. h.) 8 uinals. There follows in the next glyph but one (F2) a sign which may be 12 Ix, though both the coefficient and the day-sign are doubtful.

Whether or not D1 was an Initial Series introducing glyph makes no difference in the total number of glyph-blocks in this text, since the Initial Series introducing glyph on the other side occupies the space of but one glyph-block. This makes $9+20+9+20=58$ glyph-blocks for the entire inscription.

The possibility that Stela 10 together with Stela 12 may have defined a certain line of sight which had to do with the location of the Acropolis in its present position has already been pointed out in connection with Stela 12. If Professor Willson's suggestion should be correct that these two monuments were used in observing the setting of the sun, Stela 12, the eastern one, must have been the point of observation, and Stela 10 the object observed, since of the two, Stela 10 is 40 meters higher above the valley than Stela 12, and, moreover, is the only one of the two which stands out against the horizon.

Altars J' and K', two archaic sculptures already described (p. 56) were found in the foundations of Stela 10. There is nothing, however, to indicate their original provenance.

STELA 19.

Provenance:	In a small valley just west of Hacienda Grande at Group 13, 5.5 kilometers west of the Main Structure and 1 kilometer west of Stela 10. (See plate 3 and figure 24.)
Date:	9.10.19.15.0 4 Ahau 8 Chen.
Text, (a) photograph:	plate 16.
(b) drawing:	plate 16 and figure 25.
Reference:	Gordon, 1898 <i>b</i> , map facing p. 141.

Stela 19 is 3.17 meters long, 63 cm. wide, and 43 cm. thick. It probably is the same monument as the "stela within walled enclosure" shown by Gordon in his map of the Copan Valley, located about 1 kilometer west of Stela 10,² although no further reference to it is found in any of the Peabody Museum publications. It was "rediscovered" by Spinden in 1914 and the following analysis of the inscription is based upon the writer's study of the original in 1915.

Stela 19 is now broken in two pieces which lie on an artificially leveled hill in a little valley just west of Hacienda Grande, and 5.5 kilometers west of the Main Structure. There seems to have been quite a large settlement here. Mounds, small plazas, and remains of stone walls fill the valley,

¹Glyphs 38, 39, and 41, Maudslay's numeration (1889-1902, vol. I, pl. 111.)

²See Gordon 1898*b*, map facing p. 141.

extending both north and south of the particular plaza where this stela was found for perhaps half a kilometer.

The stela itself and the associated altars were found about the middle of the group in the largest plaza (see figure 24), and here doubtless was the center of the community. With the exception of Stelæ 13 and 23, to be presented next, Stela 19 is the most distant of all the monuments from the Main Structure.

The inscription is presented on all four sides, and on the basis of this arrangement it may be assigned to Class 3. Only one side has an Initial Series, the introducing glyph of which (A1-B2) is of extraordinary form. (See plate 16.) The trinal superfix and subfix are both present, as well as the variable central element, which is apparently a human figure. The "tun" sign and comb-like lateral appendages, however, are almost entirely obscured by two twining serpents, whose grotesque heads with widely extended jaws occupy the greater part of the glyph-block. This latter feature, so far as the writer knows, is unique in the whole Corpus Inscriptionum Mayarum.

The cycle-sign and coefficient appear in A3, B3. The latter is clearly 9, there being one large double-outlined, cross-hatched dot on the lower part of the face. The katun coefficient (A4) is 10, the death's head being perfectly clear.

The tun coefficient (A5) is very clearly 19, and the uinal coefficient (A6), 15. The line of fracture runs through the kin coefficient (A7), which is partially effaced. The lower part of this head, however, shows the fleshless lower jaw, which would ordinarily indicate the number 10.

The day-sign of the Initial Series terminal date should be recorded at A8, but even in spite of the effaced condition of this glyph it is clear that it never was a day-sign. Following through the remaining glyphs on the front, the last, A10, is Glyph B of the Supplementary Series.

Glyph A of the Supplementary Series (c1) is found on the top of one of the sides and is shown in figure 25, *a*, c1, and immediately following this is the day of the Initial Series terminal date (c2) 4 Ahau. Since the day-sign



FIG. 24.—Map of central mound of Group 13 (Hacienda Grande), showing location of Stela 19 and associated altars.

is Ahau, the kin coefficient in A7 must be 0 and not 10, as first deciphered. This is one of the cases already cited in connection with Stela 2, where the fleshless lower jaw has the value of 0 instead of 10, as usual. The record of the day-sign of the Initial Series terminal date after Glyph A of the Supplementary Series in this text, and not after the kin-sign, as is usually the case, has a parallel in Stela 13, the next monument but one in this group to be described, and one moreover which records a date only 60 days later than the Initial Series of Stela 19.

The next glyph in figure 25, *a* (c3), should record the month of the Initial Series terminal date, but it is too effaced to decipher. Gathering together the above data, it will be found that the Initial Series 9.10.19.15.0 4 Ahau 8 Chen is recorded on Stela 19 as follows:

A1-B2	Initial Series introducing glyph
A3, B3	9 cycles
A4, B4	10 katuns
A5, B5	19 tuns
A6, B6	15 uinals
A7, B7	0 kins
C2	4 Ahau
C3	(8 Chen) ?

Although there are no other decipherable glyphs on Stela 19 itself, its inscription was probably continued on the periphery of the altar originally associated with it. During his visit to Hacienda Grande in April 1915, the writer discovered two fragments of a round altar about 30 meters north of Stela 19 and in the same plaza. (See figures 24 and 25, *b* and *c*.)

These two fragments, though not contiguous, give sufficient of the circumference to show that the altar was originally 1 meter in diameter and about 30 cm. in height. Judging from the size of the preserved glyph-blocks, if the glyph band extended clear around the periphery, there were 13 glyph-blocks in all.

In view of its extremely fragmentary condition, it must be considered a rare piece of good fortune, therefore, that of the only five glyphs recovered either in whole or in part, about a third of the original inscription, two clearly record the Initial Series terminal date of Stela 19, namely, 4 Ahau 8 Chen. (See figure 25, *b*, B1, C1.) Although the upper part of this date is missing, it is perfectly clear as deciphered, and since the Initial Series on Stela 19 is 9.10.19.15.0 4 Ahau 8 Chen, this Calendar Round date doubtless had the same position in the Long Count.

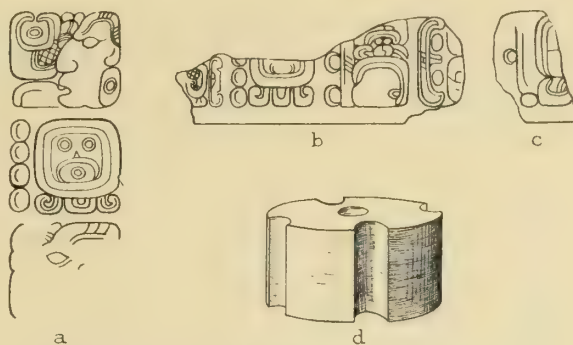


FIG. 25.—*a*, Part of inscription on side of Stela 19. Altars associated with Stela 19: *b*, *c*, fragments of inscribed altar; *d*, plain altar.

Unfortunately the rest of the text is missing. The writer believes, however, that it was probably continued from this date 4 Ahau 8 Chen by a Secondary Series composed of 3.0 to 9.11.0.0.0 12 Ahau 8 Ceh, which would bring the text forward to the nearest hotun-ending.

A parallel case would be that of Stela E and its altar, already presented, although in this case the hotun-ending date is preserved and the date from which the count starts is effaced. On the altar of Stela 19 the positions are just reversed, the starting-date being preserved and the hotun-ending missing. Another parallel will be found in the case of Stela I and its altar. (See pp. 179, 182.)

We have, then, on Stela 19, the record of a date 9.10.19.15.0, which was 3.0 (60 days) *before* the end of the current hotun, 9.11.0.0.0, and 2.0 (40 days) *after* the Initial Series of Stela 10, *i. e.*, 9.10.19.13.0. And on the associated altar we have the same date as the Initial Series terminal date on the stela. This latter date, the writer believes, was brought forward to 9.11.0.0.0 by glyphs on the pieces now missing.

A summary of the combined texts follows:

Stela 19	A1-B7, C1	9.10.19.15.0	4 Ahau 8 (Chen)
Altar	B1, C1	9.10.19.15.0	4 Ahau 8 Chen
		(3.0)	missing
		(9.11. 0. 0.0	12 Ahau 8 Ceh) missing

There are $17 + 10 + 20 + 10 = 57$ glyph-blocks on the stela and 13 on the altar, making a total of 70 for the entire text. The Initial Series introducing glyph occupies the space of 4 glyph-blocks.

In addition to the round altar just described, Stela 19 seems to have had another of very unusual shape. (See figures 24 and 25, *d.*) This is also round, but has four deep grooves cut in the periphery 90° apart. There is a depression in the top, perhaps for holding offerings. It is plain and stands about 30 cm. high, being about a meter in diameter. It was found southwest of the inscribed altar.

The inscription on Stela 19 has one other unique feature, namely, that each of the period-glyph coefficients occupies a glyph-block by itself. Note also the filling element at the right of each except the cycle coefficient, *i. e.*, A4, A5, A6, and A7, plate 16, which look like ending prefixes.

STELA 23.

Provenance:	Original position unknown. Found built into the walls of the cabildo at Santa Rita, about 12 kilometers up the valley from the Main Structure, at Group 1. (See plate 3.)
Date:	9.11.0.0.0 12 Ahau 8 Ceh. ¹
Text, drawing:	figure 26.
References:	Maudslay, 1889-1902, vol. 1 of text, p. 16. Morley, 1916a, p. 338.

¹For other monuments recording this same hotun-ending, see Appendix VIII.

Three pieces of Stela 23, the most distant of all the outlying monuments, were found by the writer in March 1916, built into the walls of the cabildo at Santa Rita or Cachapa (Group 1), 12 kilometers northeast of the Main Structure. It is probably the same monument as that mentioned by Maudslay at this place: "The small village of Cachapa, which is situated about seven miles up the river-valley to the northeast, also stands on the site of old buildings, and several pieces of stone with remains of hieroglyphic writing on them are still to be seen lying amongst the rubbish of the plaza."¹

From such information as was to be had from the villagers, these appear to have been placed in the walls of the cabildo about 30 years ago. Concerning its original provenance little could be learned, other than that it was found somewhere in the village. However, in the village plaza there is a large drum-shaped stone, 1.06 meters in diameter and 37 cm. high, which would seem to have been either the foundation-stone or altar of Stela 23. As it is without decoration, perhaps the former is the better explanation of its use; and to this we may add Maudslay's testimony that there were several hieroglyphic fragments lying in the rubbish of the plaza in 1885.

Santa Rita is built on the site of an ancient Maya settlement like the modern village of Copan, and similarly it has grown at the expense of the earlier group. Dressed stones are found in house-walls all over the village, and fragmentary sculptures, heads, torsos, and the like are scattered around the court yards of different houses. Mounds even may still be found within the limits of the village, and the ancient and modern plaza areas would appear to be coincident. In short, there is abundant evidence of the existence in former times of a not inconsiderable settlement here.

When Stela 23 was broken it seems to have cracked into five large pieces, of which only three have been recovered—the top, third, and fourth fragments. Of the two missing pieces, only one had sculpture, however; the other, the bottom fragment, being the part that was embedded in the ground. The combined height of the three fragments recovered is 1.70 meters, to which it seems necessary to add another half meter for the missing second piece. The monument must have thus stood at least 2.5 meters above ground and probably 3 meters. It is 61 cm. wide and 46 cm. in thickness.

An exhaustive search of the village failed to disclose the present whereabouts of the missing sculptured piece. All the walls in the vicinity were examined, but without success. One old woman said she thought it had been broken up into smaller pieces and used in the foundations of the church, but she was not sure. "It had been a long time ago." An examination of the church walls failed to confirm this story, although it may well be true. What the writer fears most is that it was broken into very small pieces and built into positions where the sculptured faces are either hidden or inconspicuous, as in the case of Altars L' and M' in the walls of the church at Copan village.

The front is sculptured with a human figure side-view—the first, and with one other exception, Stela 11, the only example of a side presentation

¹Maudslay, 1889-1902, vol. 1 of text, p. 16.

of the main figure on a stela yet reported at Copan. The back and sides are inscribed with glyphs. On the basis of this arrangement of the design, Stela 23 may be assigned to Class 4.

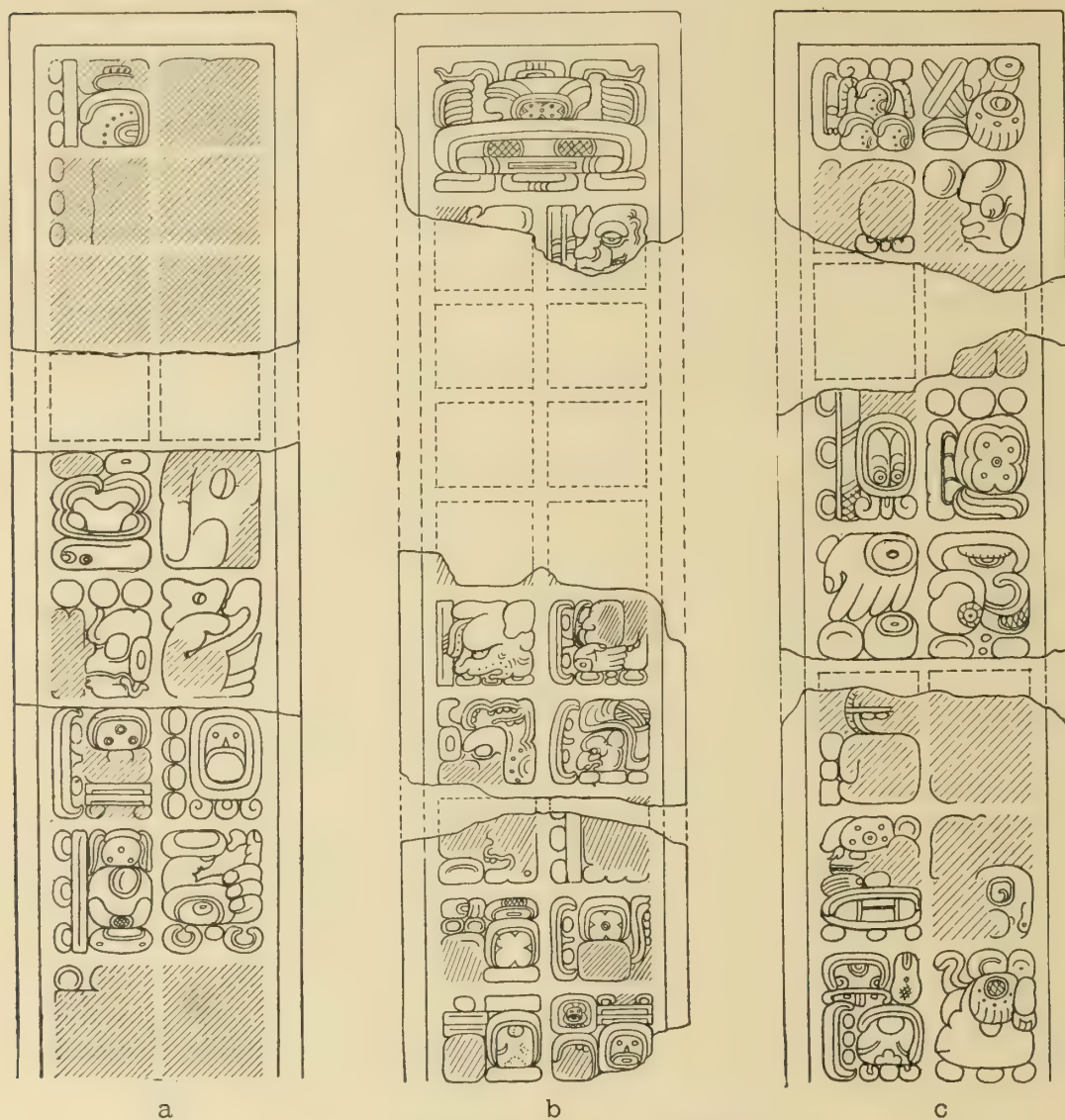


FIG. 26.—Inscription on Stela 23: *a, c*, sides; *b*, back.

The inscription (see figure 26, *b*) opens on the back with an Initial Series introducing glyph, D1-E2, the variable central element of which is the kin-sign in a shield. It is almost identical with the corresponding element in the Initial Series introducing glyph on the back of Stela 16. Compare figure 26, *b*, with plate 10, *b*, and also with Date 28 of the Hieroglyphic Stairway.

The cycle-glyph and coefficient, D3, figure 26, *b*, are almost entirely effaced, and the katun-sign and coefficient, E3, partially so. Fortunately, enough of the latter remains to show that it is 10, the two bars appearing very clearly.

The tuns, uinals, kins, and day, D4, E4, D5, and E5 respectively, are on the missing second fragment, as are also the first two glyphs of the Supple-

mentary Series, D6 and E6. It is difficult to say whether four or six glyph-blocks are missing here, though from what remains of the Supplementary Series on the next piece, it would seem as though there had probably been six, as shown in figure 26, *b*. If so, the last two, D6 and E6, doubtless were Glyphs G and F, respectively, of the Supplementary Series.

The glyphs on the third fragment continue the Supplementary Series, E7 being very clearly Glyph C; D8, Glyph X; and E8, Glyph B.

The fourth fragment opens with Glyph A, the last glyph of the Supplementary Series at D9, followed by the month of the Initial Series terminal date 8 ? at E9. There follow two familiar, though undecipherable, glyphs in D10, E10, in which the kin or day-sign appears to be the most important element, and then comes a Secondary Series in D11 of 5.11. Finally, the last glyph on the back, E11*b*, is very clearly 12 Ahau, and the top of the adjoining side on the right facing the front of the stela, figure 26, *a*, F1, is 8 Ceh. The next glyph, G1 (figure 26, *a*), is entirely effaced, and the next, F2, is a period-glyph, recording probably 11, 12, or 13 katuns.

Goodman's tables show that the only place the Calendar Round date 12 Ahau 8 Ceh could have ended an even tun in Cycle 9 was in 9.11.0.0.0, at which time it also ended a katun and hotun as well, so there is little doubt that 12 Ahau 8 Ceh, End of Katun 11, is the date recorded by E11*b*-F2.

Other points in support of this reading are: the proximity of the Initial Series date, which we know is in Katun 10 (E3); the proximity of the Calendar Round date on the other side (left facing the front of the stela), *i. e.*, within two years of 9.11.0.0.0, as we shall see; the prominence of this date 9.11.0.0.0 elsewhere at Copan being recorded on no less than six other stelæ; and finally the general stylistic criteria. Indeed, the contemporaneous date of this monument may safely be accepted as 9.11.0.0.0 12 Ahau 8 Ceh.

If the Secondary Series number in D11, *i. e.*, 5.11, is counted back from 9.11.0.0.0 12 Ahau 8 Ceh, it will not reach the Initial Series terminal date:

9.11.	0.	0.	0.	0.	12 Ahau 8 Ceh
				5.11	
9.10.19.12.	9				5 Muluc 17 Xul

The katun coefficient in E3 agrees, but the month coefficient in E9 does not. As recorded, it is clearly 8, while by the above calculation 17 is reached. If, however, we change the Secondary Series number from 5.11 to 5.12, *i. e.*, supposing one dot to have disappeared from the coefficient in D11*a*, we reach a date 9.10.19.12.8 4 Lamat 16 Xul, which is exactly 1 tun later than the best reading of the Calendar Round date on the left side facing the monument (see figure 26, *c*, H4, 14), a significant coincidence:

9.10.18.12.8	8 Lamat	1 Yaxkin
		1. 0.0
9.10.19.12.8	4 Lamat	16 Xul

Neither of these, however, can be the Initial Series terminal date, and owing to the loss of the second fragment it is impossible to fix this other than as having been some time in Katun 10.

There is another period-ending on the side under discussion at G7-F9, figure 26, *a*, which is exceedingly important, no less than 4 Ahau 8 Cumhu End of Cycle 13, the starting-point of the Maya chronological system. So far as the writer knows, this unique date is found on only four other monuments in the Maya field: Stela C at Quirigua, Altar 1 at Piedras Negras, Stela J at Copan, and in the Temple of the Cross at Palenque. As recorded here, all is very clear but the Cycle 13 in F9, though the left-hand dot and part of the middle dot and topmost bar may still be seen. Cycle 13 is again recorded on the front of this monument at B1, the second glyph in the horizontal band in the upper left-hand corner.

arrangement of the glyphs on the front, more will be said later.



One other date at H4, 14, figure 26, *c*, on the opposite side, remains to be described. The preliminary inspection would indicate the reading 8 ? 1 or 2 Yaxkin. If the month coefficient is 2, the day-sign must be either Kan, Muluc, Ix, or Cauac. A comparison of H4, however, with all the known variants of these days shows that it has not the slightest resemblance to any of them, and we are forced to conclude either that this is an entirely new variant of one of them, or else the month coefficient in 14 is not 2. The latter is the better explanation of the matter.

The day-sign, while it bears no resemblance to any of the known forms for Kan, Muluc, Ix, and Cauac, has on the other hand a very strong resemblance to an unusual variant of Lamat, which, so far as the writer knows, occurs only here at Copan and once at Palenque. (See figure 39.)

This variant appears to be the same as the sign for the planet Venus, or rather one-half of that sign,¹ which may indicate some ceremonial connection between Lamat and that planet. At all events, half of the Venus-sign appears to have been used also as a sign for Lamat.² But Lamat can only have a corresponding month coefficient of 1, 6, 11, or 16, and it is therefore apparent that the coefficient of Yaxkin in H4 must be 1 instead of 2.³

¹The complete sign for the planet Venus is bilaterally symmetrical with reference both to the vertical and horizontal axes of the glyph. Half of the sign, both in the inscriptions and in the Dresden Codex, is frequently used as a substitute, both in the inscriptions and in the Dresden Codex, where the Venus-solar period is set forth, the two signs appear side by side, in identical relations. Indeed, the use of but half of the sign for the whole would appear to have been due to the desire for brevity rather than as indicating any corresponding change of meaning.



the sign however, is frequently used as a substitute, both in the inscriptions and in the Dresden Codex, where the Venus-solar period is set forth, the two signs appear side by side, in identical relations. Indeed, the use of but half of the sign for the whole would appear to have been due to the desire for brevity rather than as indicating any corresponding change of meaning.

²The other examples of the use of this variant for Lamat are:

1. Stela J, east side, Glyph 32*b* (Maudslay's numeration), see p. 203, and figure 39, *b*.
2. Hier. steps south side Mound 2. G2 (plate 26, *g*), see p. 234 and figure 39, *c*.
3. Hier. Stairway west side Mound 26. Date 2. *sa*, see p. 243 and figure 39, *f*.
4. Hier. Stairway west side Mound 26. Date 3. *pb*, see p. 244 and figure 39, *g*.
5. Hier. Stairway west side Mound 26. Date 24. Fragment 6 (plate 27), see p. 259 and figure 39, *h*.
6. Hier. Stairway west side Mound 26. *ca* (Gordon, 1902, plate 13 *D*), see p. 265 and figure 39, *e*.
7. Palenque, Palace Group, House C, Stairway. Maudslay (1889-1902, vol. IV, plate 23, B6 l. h.), and also figure 39, *a*.

It will be noted that two-thirds of these examples are from the Hieroglyphic Stairway of Mound 26. Another connection between the Venus-sign and the day Lamat, although not a direct use of the former for the latter, is seen on Altar K (see p. 185), where the variable element in the Initial Series introducing glyph is the Venus-sign and the day of the Initial Series terminal date is Lamat.

³As drawn in figure 26, *c*, the coefficient of Yaxkin looks as much like 2 as 1, but a final examination of the original in 1917 convinced the writer that either 1 or 2 is equally possible here, the original having one large, plain, round dot, inadequately drawn in the text above, between two smaller ones, also plain.

The best defense of this reading that can be offered is the satisfactory chronological coincidence which its use develops; for if we read H4, I4 as 8 Lamat 1 Yaxkin, we will have a date which is within 2 years of the hotun-ending recorded on this stela, and which is exactly 1 tun earlier than a date reached in calculations on the other side, as already noted:

9.10.18.12. 8	8 Lamat 1 Yaxkin
1. 0. 0	(360 days)
9.10.19.12. 8	4 Lamat 16 Xul
5.12	(112 days)
9.11. 0. 0. 0	12 Ahau 8 Ceh

The month coefficient in I4, as noted in note 3, page 150, looks as much like 1 as 2, and this, coupled with the fact that the day-sign is probably Lamat, and the satisfactory chronologic proximity arising from such an identification tends to corroborate the accuracy of the reading suggested. A summary of the text follows:

Front	B1	Cycle 13
Back	D1-E5, E9	9.10.?.?.?.? ? 6, 7, or 8?
	D11	5.12
Back and side	E11b, F1	9.11. 0. 0. 0 12 Ahau 8 Ceh
Side	G1, F2	End of Katun 11
	G9, F10	13. 0. 0. 0. 0 4 Ahau 8 Cumhu
	G10, F11	End of Cycle 13
Side	H7, I7	9.10.18.12. 8 8 Lamat 1 Yaxkin

There are 6 glyph-blocks on the front of this monument, 19 on the back, and 22 on each side, making a total of $6 + 19 + 22 + 22 = 69$ for the entire text.

The portrayal of the principal figure of a stela, in profile, together with the peculiar inverted L-shape arrangement of the glyphs on the front, strikes a unique note of presentation at Copan, one indeed more characteristic of the northern cities of the Old Empire, *i. e.*, those of the Usumacintla Valley and the Peten region of northern Guatemala. (See plate 1.) Examples of this presentation in the former region are Lintels 32, 42, and 46, and Stelæ 11, 19, and 20 at Yaxchilan, where it is particularly noticeable; and in the latter region Stelæ 23 and 29 at Naranjo.

The only other stela at Copan having the same presentation of the principal figure is the small late stela, No. 11 (p. 369), which, however, lacks the peculiar inverted L-shaped glyph-panel so characteristic of the stelæ and lintels at the northern cities.

Stela 23, therefore, is particularly important as a connecting-link between the two parts of the Old Empire. It indicates that even at this early date (9.11.0.0.0), at the beginning of the Middle Period, there must have been close and constant intercourse between the different parts of the Old Empire. Indeed, we can possibly imagine northern sculptors as coming south to the great southern metropolis for new ideas, and the Copan sculptors as going north to draw inspiration and help from the great northern centers. There must have been a free and general exchange of ideas and technical processes and endless borrowing and copying of decorative motives. Possibly the

human figure in profile may have been introduced at Copan with this monument, only to have fallen into immediate disfavor.

The glyphic presentation on the front of Stela 23 is but a single item in a vast body of evidence now available tending to establish the absolute homogeneity of culture throughout the Old Empire region.


STELA 13.

Provenance:	On a steep bluff overhanging the north bank of the Copan River 6.5 kilometers northeast of the Main Structure at Group 2. (See plate 3.)
Date:	(Stela) 9.11. 0.0.0 12 Ahau 8 Ceh. ¹ (Altar) 9.10.17.0.4 2 Kan 7 Mac (??).
Text, drawing:	plates 15, <i>b</i> , and 22, <i>d</i> .

Stela 13 was found by one of the Peabody Museum Expedition, but no description of it has ever been published, not even the fact of its discovery. Through information received from Gordon, the writer was able to re-locate this monument during his visit to Copan in 1912.

It lies on the summit of a low hill or bluff overhanging the north bank of the Copan River, 6.5 kilometers up the valley from the Main Structure, and within 5 or 6 kilometers of Santa Rita, where Stela 23 was found. (See plate 3.) It is 3.34 meters long, 71 cm. wide, and 61 cm. thick. The associated altar stands in front of the north side of the monument, which we may therefore conclude was its front.

All four sides are inscribed with glyphs, as in the cases of Stelæ 20, 15, 21, 9, 12, 10, and 19, and on the basis of the arrangement of its design, Stela 13 is to be assigned to Class 3. The Initial Series introducing glyph appears at A1-B2. (See plate 15, *b*.) The cycle coefficient (A3) is 9 expressed by a bar-and-dot numeral. The katun coefficient (B3) is unusually clear as 11, also expressed by a bar-and-dot numeral. The monument is broken across the tun and uinal glyphs, which are somewhat destroyed in consequence. The two coefficients, however (A4a and B4a respectively), are sufficiently preserved to permit the identification of both as 0. The kin coefficient (A5a) is in better condition and is exactly like the tun and uinal coefficients, namely, 0.

The day of the Initial Series terminal date, 12 Ahau, is not recorded at B5 as usual, but is found at A8 after the last glyph of the Supplementary Series, which in this inscription is of very unusual form.  The ball element in the oval in the upper part is a grotesque head. This is very rare; in fact, the writer recalls but one other instance in the entire range of the Maya inscriptions, also here at Copan, not only on one of the monuments of this same group, namely, Stela 3,² but also upon one recording the same date, namely, 9.11.0.0.0.

¹For other monuments recording this same hotun-ending, see Appendix VIII.

²A few cases where the moon-glyph occurs in constellation bands are not included here, although even in such cases the head appearing is sometimes that of God D. Thus, for example, in the constellation band on the base of Stela 10 at Piedras Negras, God D appears in the upper part of the moon-glyph. See Maler, 1901, plate 19.

In this other example the grotesque head is of the same form as the one here on Stela 13, and the writer suggests that both may represent God D, the Moon God.¹ The association of this particular deity with the last glyph of the Supplementary Series is very appropriate, since this glyph as explained in Appendix VI is undoubtedly the sign for the moon. Moreover, in the codices the moon-glyph is the main part of the sign for God D. This connection between God D and the moon, and hence between God D and the last glyph of the Supplementary Series, which is probably the sign for the moon, is strengthened by the discovery of the head of God D in this glyph on Stela 13 and also in the corresponding glyph on Stela 3 as well.

Returning once more to our text, the month-sign, 8 Ceh, will be found in A9. The last glyph in plate 15, *b*, B9, is very interesting. It records the "End of a tun," the tun-sign being the unusual winged-Cauac variant, the Cauac element here modified into a human head. Note the ending prefix and the hand. Another example is seen in Glyph Q15 from the tablet of the Temple of the Sun at Palenque (Maudslay, 1889-1902, vol. IV, plates 87-89). Here the end of a Tun 10 is recorded, the tun-sign being the usual head-variant, modified by well-known Cauac elements—the wing as a subfix, the "cloud-balls" as a head ornament—and the circle, here shown as a hook of dots, in the eye.

These two examples are extremely important as establishing the early synonymy of the winged-Cauac and the tun-signs, and they are the beginnings of what later became almost the exclusive use of the former for the latter in the New Empire. (See also the inscribed peccary-skull in figure 56 and the accompanying discussion, pages 379-381, for a still earlier occurrence of this same variant.)

The whole Initial Series of Stela 13 therefore reads 9.11.0.0.0 12 Ahau 8 Ceh, as follows:

A 1-B 2	Initial Series introducing glyph
A 3	9 cycles
B 3	11 katuns
A 4	0 tuns
B 4	0 uinals
A 5	0 kins
B 8	12 Ahau
A 9	8 Ceh
B 9	End of a tun

There are a few other signs which are familiar, although of unknown meaning. The last glyph on the Initial Series side is the day 1 Ahau. Its record here is difficult to explain unless it be taken as a reference to the fact that the preceding katun ended on a day 1 Ahau, viz, 9.10.0.0.0 1 Ahau 8 Kayab.

The altar associated with Stela 13 is of the round, drum-shaped type, and is 1.49 meters in diameter and 46 cm. high. It had some crude carving on top, and four pairs of glyphs on the sides, the pairs being 90° apart. Only

¹See Morley, 1916, p. 370, and Schellhas, 1904, pp. 22, 23, figures 18-21, and plate 1, *D*.

the pair on the north side (see plate 22, *d*) seems to be of a calendrical nature. It records a Calendar Round date as follows: 1 or 2 Kan 7 ?, the day-sign surely being Kan and the month coefficient surely 7. The best value of the day coefficient is 2, though 1¹ is possible. The month-sign is possibly Zotz, though Muan or even Kankin and Mac are other possible values. The best reading of the date therefore seems to be 2 Kan 7 Zotz. This date occurred at intervals of every 52 years throughout Cycle 9. The probabilities in this case, however, are that it was some time near 9.11.0.0.0, the date on the stela with which the altar is correlated. It is clear, moreover, that this altar does not record a hotun-ending, since all hotuns ended on some day Ahau, while Kan is the day here recorded. The two occurrences of 2 Kan 7 Zotz in Cycle 9 nearest this Initial Series are, 9.9.8.2.4 and 9.12.0.15.4. The former is 1.11.15.16 (about 31 years) before the Initial Series of Stela 13 and the latter is 1.0.15.4 (about 20.5 years) after the Initial Series of Stela 13.

Both of these readings are unsatisfactory and the writer is loath to accept either as the date recorded on this altar. It is quite possible, moreover, that the terminal date is not 2 Kan 7 Zotz. If the day coefficient is not 2, it must be 1. This gives the date 1 Kan 7 Zotz, which occurred in Cycle 9 nearest before and after 9.11.0.0.0 at the following places: 9.10.0.5.4 and 9.12.13.0.4, both of which are equally unsatisfactory here.

Another possible reading, 1 Kan 7 Muan, occurred nearest before and after the date of Stela 13 at 9.9.8.13.4 and 9.12.1.8.4, both of which are again equally unsatisfactory.

Another possibility is 9.10.8.17.4 1 Kan 7 Kankin, although little may be urged in its favor, except that the month-sign might possibly be Kankin.

Approaching the question from a different angle, let us next find what are the nearest occurrences of the date 1 or 2 Kan 7 ?, that is, leaving the month-sign indeterminate for the present, both before and after 9.11.0.0.0. These can be shown to be:

BEFORE.		AFTER.	
9.10.17. 0.4	2 Kan 7 Mac	9.11.0. 9.4	1 Kan 7 Zip
9.10.16.16.4	1 Kan 7 Zac	9.11.0.11.4	2 Kan 7 Tzec
		9.11.1. 4.4	1 Kan 7 Pax
		9.11.1. 6.4	2 Kan 7 Cumhu

Of these, the first is the only one whose month-sign may be a grotesque head, and even this reading has little in its favor.

All things considered, however, the writer is inclined to accept it as the least of all evils and to regard the month-sign in B1 as an unusual variant for Mac, although it should be understood that this reading is far from satisfactory and is by no means to be accepted as proved. A summary of the entire text follows:

Stela A1-A9	9.11. 0. 0. 0	12 Ahau 8 Ceh
	(2.17.16)	undeclared
Altar A1-B1	9.10.17. 0. 4	2 Kan 7 Mac??

¹It can not be 3, since the three dots are not all of the same size, and, moreover, are otherwise unlike.

STELA 3.

Provenance:	In the Middle Court south of Mound 4 at the Main Structure. (See plate 6.)
Date:	9.11.0.0.0 12 Ahau 8 Ceh. ¹
Text, drawing:	plate 19, <i>a</i> and <i>b</i> . Spinden, 1913, plate 19, 3 (front only).
References:	Gordon, 1896, pp. 35, 36. Maudslay, 1889-1902, vol. I of text, p. 66. Spinden, 1913, pp. 159, 164, and table I. Stephens, 1841, vol. I, p. 149.

Stela 3 is 4.30 meters long, 95 cm. wide, and 1.07 meters thick. It now lies near the center of the Middle Court, some distance south of the south-eastern corner of Mound 4, broken into three pieces.² Originally it seems to have been supported by a roughly worked drum-shaped foundation-stone, which is still *in situ*.

No chamber was found under this foundation-stone, but instead, under the three layers of narrow oblong stones on which it rested, there was a pocket of pigments of different colors; in this were found four nephrite heads, each carved with a representation of the human face, well executed and highly polished. These had been pierced longitudinally, so that they could be suspended on a string and used as pendants.³

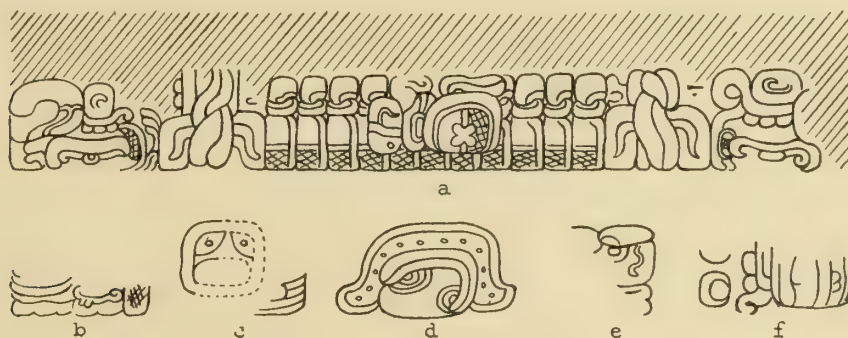


FIG. 27.—Inscription on collar of Stela 3: *a*, one side complete; *b*, *c*, *e*, *f*, remains of glyphs on ends; *d*, glyph in center of side opposite *a*.

At the level of the ground, the base of the monument was surrounded by a sculptured stone collar of four pieces. (See figure 27.) This presents the familiar knotted-band decoration so prevalent in the Early and Middle Periods at Copan. The centers of the front and back are each occupied by a single large glyph (figure 27, *a* and *d*), and the two ends of each side by smaller glyphs (figure 27, *b*, *c*, *e*, and *f*), making a total of 6 for the entire collar. One of the single glyphs, *c*, looks like Ahau, although this identification is by no means certain. The ends of the long sides terminate in large, grotesque serpent-heads, probably a development of the flanking serpent-

¹For other monuments recording this same hotun-ending, see Appendix VIII.

²When Stephens first saw this stela in 1839 it was fallen but does not appear to have been broken: "This statue is fallen and the face destroyed" (1841, vol. I, p. 149). He calls it Statue K. See Appendix III.

³Gordon, 1896, p. 36.

heads seen on Altars L', M', and Q', and later to be seen on more complex altars of the Great Period.

In Stela 3 for the first time we find both the front and back of the monument carved with representations of the human figure, each side being inscribed with a single column of 10 glyph-blocks, which, with the 6 on the collar, make 26 for the entire text. This is a new development, and on the basis of this arrangement of the design, Stela 3 may be referred to a new class, 5. The inscription on each side commences with an Initial Series introducing glyph; and on this monument, also for the first time, we have 2 Initial Series recorded.¹

Gordon says Stela 3 faced north and south, *i. e.*, the surfaces presenting the human figures faced in these directions;² and if this was true, the inscription is presented on the east and west sides. Since it is now impossible to tell which of the latter faced east and which west, and since there is a rounded inclusion of harder rock embedded in the side on which the inscription begins, this side, in default of the knowledge of the original orientation, will be called the inclusion side.

The Initial Series introducing glyph is at A1; the upper part and lower right-hand corner are missing. (See plate 19, *b.*) In the top of the variable central element, here a grotesque head, a rectangular hole has been cut. This is 76 mm. high and 63 mm. wide, and passes diagonally through the stone, emerging on the top, 51 mm. behind the edge and in line with the variable element. The interior surfaces of this hole are worn smooth, as though they had been subjected to rubbing, perhaps by cords. The Initial Series introducing glyph on the opposite, B1, has the same kind of a hole cut in the same relative position. This hole also emerges at the top behind the variable element on this side. The function of these two openings is unknown; perhaps banners or streamers of feather-work were attached to the stela by means of them; no other stelæ at Copan show this feature.³

The order of the glyphs within the individual glyph-blocks is very unusual in this text. Instead of reading from left to right and top to bottom within the glyph-block, they read from top to bottom first and then from left to right. Unusual as this order is, however, it is amply substantiated by the sequence of the known glyphs on both sides of the monument.

The cycle-sign and coefficient are found in A2a, the upper half being the coefficient and the lower half the period-glyph. (See plate 19, *b.*) The former is very clearly 9, and the traces of the clasped hand on the lower part of the

¹Although Stelæ 15, 18, 16, 17, 21, 7, and P have 4, 3, 2, 2, 4, 3, and 3 Initial Series introducing glyphs respectively, none of them has more than one Initial Series number. Indeed Stela 3 is not only the first example of this kind at Copan, but also the only one yet found here. Such stelæ are very rare, there being but seven others now known in the whole Maya area: Stela 17 at Tikal; Stela 11 at Yaxchilan; Stelæ 1 and 3 at Piedras Negras, and Stelæ F, D, and E at Quirigua, less than 4 per cent of all known stelæ. See plate 1 for the location of these sites.

²See Gordon, 1896, p. 35. This orientation makes Stela 3 face the Middle Court.

³Stela 1 at Cancun on the Rio de la Pasión (plate 1) has holes passing through its top, but they are not only larger but are also of different shape, being round. (See Maler, 1908, p. 44 and pl. 13.) Maler here suggests these holes were used to bind sacrificial victims to the stelæ: "It may be assumed that the victims were bound by means of the perforations to these stelæ, the sacrifice probably being usually performed with the victim in an upright position before stelæ of this kind." This explanation, it is hardly necessary to add, appears scarcely probable.

latter leave no doubt as to its identity. The left half of the katun coefficient in *A2b* u. h. is fortunately preserved, although it is like none of the known head-variant numerals. It has the fleshless lower jaw, which usually stands for 10, but which may on occasion mean 0. This, we have already seen, was the case in the kin coefficients on Stelæ 2 and 19, and it will also be found to be true of the tun coefficient in both this Initial Series and that on the other side of this same monument. Again, the large circle around the eye in this glyph is also characteristic of the kin coefficient of this same initial Series (*A4a* u. h.), and also of the kin coefficient of the Initial Series on the other side (*B4a* u. h.) both of which are 0; indeed, the former also has this same fleshless lower jaw. All things considered, therefore, we are probably justified in reading *A2b* as 0 katuns.

The tun-sign and coefficient (*A3a*) are unusually clear. The former (*A3a* u. h.) again has the fleshless lower jaw, ordinarily 10, but, as in the case of the katun coefficient above, here probably 0.

The tun-sign in *A3a* l. h. is unusually clear, and helps to substantiate the correctness of the above sequence of the period-glyphs and their coefficients.

The uinal-sign and coefficient in *A3b* are gone. From what little is left of the kin coefficient in *A4a* u. h., it may almost certainly be identified as 0, *i. e.*, having the same fleshless jaw and large circle around the eye as the katun coefficient.

Finally, since the katun, tun, and kin coefficients are probably 0, the missing uinal coefficient in *A3b* u. h. must almost certainly have been 0 also, and our Initial Series therefore reads 9.0.0.0.0.

Most unfortunately, the day of the Initial Series terminal date, *A4b*, is entirely effaced, and we thereby lose one opportunity of checking the above reading. It can be found from Goodman's tables, however, to have been 8 Ahau. Passing along, we reach the next to last and last glyphs of the Supplementary Series in *A6*. The large plain circle in the upper half of this glyph-block in plate 19, *b*, is the rounded inclusion alluded to above. The ancient sculptors were unable to carry the details of their design across its refractory surface and were forced to content themselves with breaking it off flush with the face of the monument.¹

Again most unfortunately, the month-sign of the Initial Series terminal date is suppressed, being filled with the grotesque head and coefficient 9, the occurrence of which will be found elsewhere here at Copan, namely, on Stela 2 and possibly on Altar H' (p. 138). Thus our second and last opportunity of checking the accuracy of the reading suggested above is gone; but in view of the close similarity of *A2b* u. h. with *A3a* u. h. and *A4a* u. h. on this side and *B3a* u. h. on the other side, the last of which is proved to be 0 by the calculations, there is little doubt but that the correct reading

¹ Through the kindness of Dr. F. E. Wright, of the Geophysical Laboratory of the Carnegie Institution, the writer is able to give a description of this inclusion, as well as of the material of the stela proper. See Appendix I.

here is 9.0.0.0.0 (8 Ahau 13 Ceh). The remaining glyphs on this side are of unknown meaning.

The inscription on the opposite side (plate 19, *a*) opens with an Initial Series introducing glyph in B₁, the variable element of which, as already noted, has a rectangular hole passing through its upper part and out on top of the monument.

The cycle coefficient in B_{2a} u. h. and the katun-sign and coefficient in B_{2b} are entirely effaced. The former was doubtless 9. Passing over the latter for the present, it will be found that 0 tuns are recorded in B_{3a}, the tun coefficient again having the fleshless lower jaw, usually 10, but on this stela always 0.¹

The uinal-sign and coefficient in B_{3b} are entirely effaced. The kin-sign and coefficient in B_{4a} are clear; the latter is surely 0, the clasped hand being used to denote 0 instead of the fleshless lower jaw, as elsewhere on this monument.

The next glyph, which ordinarily would be the day-sign of the Initial Series terminal date, is entirely effaced. Passing over B₅, we reach in B_{6a}, Glyphs B and A, the next to last and last glyphs of the Supplementary Series respectively. The latter, as already explained in connection with Stela 13, is very unusual in having a grotesque head, probably that of God D, in place of the dot element in the oval in the upper part of the glyph. (See pp. 152, 153.) Following this in B_{6b} is the day 12 Ahau, the day-sign being the familiar grotesque head variant;² and in B_{8a} u. h., the month 8 Ceh, and in B_{8a} l. h., Katun 11. The Initial Series recorded upon this monument, therefore, is 9.11.0.0.0 12 Ahau 8 Ceh, and we may fill in the missing katun coefficient as 11 and the missing uinal coefficient as 0, and finally accept as proven that the fleshless lower jaw in the tun coefficient in this Initial Series and in the katun, tun, and kin coefficients of the Initial Series on the other side of this monument stands for 0.

In B_{7b} u. h. is very clearly recorded 13 uinals, or exactly 1 tonalamatl, 260 days. Record of tonalamatls, although very common in the codices, is almost unknown in the inscriptions, the present case being one of the very few cases known. The end of a tun is probably recorded in the next to last glyph-block on this side, B_{8b} l. h.

There are no other decipherable glyphs on this side of the monument. A summary of the inscription follows.

¹ When the writer examined Stela 3 in April 1915, he was unable to find the fragment which presented the cycle-sign and the tun coefficient, *i. e.*, A_{2a} l. h. and A_{3a} u. h. respectively. A protracted search of the immediate vicinity of the monument failed to disclose the whereabouts of this piece and he was obliged to leave the site without drawing these two glyphs. On his return to this country, however, during a visit to the Peabody Museum, he found this missing fragment miscatalogued under the name of "a piece of Stela 4." It had been brought from the ruins to Cambridge by the Second Peabody Museum Expedition in 1893; and when its two glyphs were drawn to scale, they were found to fit exactly in the position shown in plate 19, *a*, and their fortunate recovery materially aided in the final decipherment of the date of this monument.

² See Bowditch, 1910, plate 6, Nos. 35-38; and Morley, 1915, p. 41 and figure 16, *j'* and *h'*. Also compare Appendix X.

Inclusion side, A1	Initial Series introducing glyph
A2a	9 cycles
A2b	0 katuns
A3a	0 tuns
A3b	0 uinals
A4a	0 kins
A4b	8 Ahau
	(13 Ceh) not recorded
Opposite side, B1	Initial Series introducing glyph
B2a	9 cycles
B2b	11 katuns
B3a	0 tuns
B3b	0 uinals
B4a	0 kins
B6b	12 Ahau
B8a u. h.	8 Ceh
B8a l. h.	Katun 11
B7b u. h.	13 uinals = 260 kins = 1 tonalamatl
B8b l. h.	End of a tun

The style of the glyphs on Stela 3 is unusual (see plate 19, *a* and *b*); indeed, they are the most intricate at Copan. The design is exceedingly complex, and is executed with a delicacy and feeling hardly to be thought possible with tools of stone. Each glyph-block is a beautiful example of harmony and balance, and each, regarded as a unit, conforms to the most rigid canons of pure design. Barring some of the best work of the Great Period, the inscription on this monument is the finest glyph delineation which was done at Copan.

In summarizing the inscriptions on the foregoing monuments (*i. e.*, Stelæ 12, 2, 10, 19, 23, 13, and 3), it is evident that, quite irrespective of the dates recorded upon them, they present very considerable stylistic divergences. Thus, for example, the glyphs on Stela 12 are crude and unskillfully executed as compared with the beautiful ones on Stela 3 just described, and yet both of these monuments have the same closing date, namely, 9.11.0.0.0. Again, the glyphs on Stelæ 10 and 19 appear to be better carved than those on Stela 13, and yet the dates of these two monuments are actually 100 days and 60 days earlier, respectively, than the date of Stela 13, which is also 9.11.0.0.0.

A close examination of these monuments, however, shows that the observed stylistic divergences are rather those of execution and technique than of subject-matter. A study of their glyphic details, moreover, establishes close similarities between the several monuments of the group, and at the same time differentiates them from all other monuments here at Copan. A case in point is the unique use of the fleshless lower jaw to denote 0, found only on Stelæ 2, 19, and 3, here at Copan, and nowhere else in the entire Corpus Inscriptionum Mayarum. Another example is the portrayal of a head in place of the dot element in the last glyph of the Supplementary Series, found only on Stelæ 13 and 3; or again, the substitution of a sign with a grotesque head and a coefficient of 9 in place of the month-sign of the Initial Series terminal date, found only on Stelæ 2 and 3;¹ or again, the use

¹ Altar H' may possibly be another example of this. See plate 23, *a*, *bb* l. h., and p. 138.

of the full-figure variant of the uinal-sign, and of head variants for all the other periods, found only on Stelæ 15, 24,¹ 12, and 2; or again, the use of a very unusual grotesque head with large prominent teeth for the kin-sign found only in Stelæ 10 and 3. These stylistic similarities between the several monuments of the group establish a very close connection between them, and probably indicate a single source of inspiration, or group of sources very closely related, and almost certainly contemporary.

Doubtless some artisans were more skillful than others; some more clever in reproducing in stone the working drawings on paper or skin, which must have preceded such elaborate compositions as those represented on the Copan stelæ. Such differences, however, due to individual variations in the personal equation, are inevitable in any art at any time. For every Maya Phidias or Praxiteles there must have been a score of Alcamenes, Naucydes, or Thrasymedes; for every genius, a host of lesser lights. And the observed stylistic divergences in the several monuments of this group are not greater than would have been due to the varying personal equations of contemporary sculptors either here at Copan, or at Athens, or at Thebes. Indeed, it is almost necessary to postulate a contemporaneous origin for the monuments of this group to explain satisfactorily their glyphic similarities.

The foregoing stylistic analysis forecasts, as it were, the chronologic situation as established by the dates actually recorded upon these monuments, namely, that all seven date from the same period, five (Stelæ 12, 2, 23, 13, and 3) actually recording the date 9.11.0.0.0, and the other two, Stelæ 10 and 19, dates only 100 days and 60 days earlier respectively; and in the case of the last-mentioned, the inscription on the associated altar doubtless also brought its date down to 9.11.0.0.0.

Considering the chronologic record somewhat closer, it will be remembered that (1) two of these monuments (Stelæ 12 and 2) have 9.10.15.0.0, the previous hotun-ending as their Initial Series, but close with Period Ending dates of 9.11.0.0.0; (2) that another, Stela 23, has a Katun 10 Initial Series, but closes with this same Period Ending date; (3) that two others (Stelæ 10 and 19) have as their Initial Series dates less than 6 months earlier, one of which, as just explained, was probably brought down to 9.11.0.0.0 by a Secondary Series on the associated altar; and finally (4) that the remaining two, Stelæ 13 and 3, actually have 9.11.0.0.0 as their Initial Series.² In short, chronologically considered, these monuments probably date from the same hotun-ending, namely, 9.11.0.0.0, a condition corroborated by the stylistic criteria in spite of considerable technical divergences.³

The situation, therefore, may be summed up as follows: These seven stelæ were probably erected, or at least dedicated, at the same time, namely,

¹ Although Stelæ 15 and 24 show this same unusual feature, they are 130 and 170 years earlier respectively than Stela 12 and Stela 2 and therefore are in no danger of being confused with them either on chronologic or stylistic grounds.

² Although Stela 3 presents two Initial Series, 9.0.0.0.0 and 9.11.0.0.0, only the latter of course could have been the contemporaneous date.

³ It is possible that Stelæ 12 and 2 may date from the previous hotun-ending, 9.10.15.0.0, in which case the Katun 11 dates on them are prophetic.

9.11.0.0.0, but the actual making of them, the carving, was intrusted to different hands. In two cases, Stelæ 2 and 3, representations of the human figure were attempted, Stela 3 being the more successful, as well as the more ambitious, since it has two figures. One, Stela 23, shows a side presentation of the human figure, the only example of its kind at Copan. The other four were inscribed with glyphs on all four sides and vary in excellence in the following order, the first being the crudest: Stelæ 12, 13, 10, and 19. Finally, although differing considerably in technique, all seven may safely be assigned to the same hotun-ending.

We come next to a period of some perplexity, namely, the katun after 9.11.0.0.0. Following this latter date, there seems to have been a hiatus in the sequence of the monuments at Copan for two hotuns, since there are no sculptures, either stelæ or altars, that can be assigned to the period between 9.11.0.0.0 and 9.11.15.0.0, on which latter date Stela 1 and the East Altar of Stela 5 were erected. The next hotun, 9.12.0.0.0, seems to have been marked by the erection of two altars but no stelæ—the West Altar of Stela 5 and the Altar of Stela 1. At least no stela has yet been found recording this date. The uncertainty alluded to above, in regard to these four monuments, lies first in the possibility that the dates of these three altars may not be correctly deciphered as given, a possibility, however, which the writer believes to be remote, and second, in the fact that the East Altar of Stela 5 apparently should be associated with Stela 1 and not with Stela 5, the altar now associated with Stela 1 belonging elsewhere. These points will receive further attention later, and since the dates suggested above are probably correct, these four monuments will be presented in the following order: Stela 1, the East and West Altars of Stela 5, and the altar of Stela 1.

STELA 1.

Provenance:	On the second step of the stairway on the western slope of Mound 9 at the southeastern corner of the Middle Court, Main Structure. (See plate 6.)
Date:	9.11.15.0.0 4 Ahau 13 Mol. ¹
Text, (a) photograph:	Maudslay 1889-1902, vol. I, plate 100.
(b) drawing:	<i>ibid.</i> , plate 100, A, B, and C. Gordon, 1896, figure 6.
References:	Bowditch, 1910, pp. 100, 101, 135, 196, and table 31. Gordon, 1896, pp. 36, 37. Gordon, 1902, pp. 174-176. Maudslay, 1889-1902, vol. I of text, p. 66. Spinden, 1913, p. 159, and table I.

Stela 1 is broken into two pieces. The upper and larger part lies on the ground, the base being *in situ* on the second step of the stairway ascending the western slope of Mound 9. Underneath the base of this stela was a cruciform chamber like those under Stelæ 7, I, M, and C. This was opened by the Fourth Peabody Museum Expedition in 1895, and was found to contain "five rude earthenware vessels, fragments of stalactites, shells of the *Spondylus calcifer*, a large jadeite bead, and a quantity of cinnabar," all

¹ For other monuments recording this same hotun-ending, see Appendix VIII.



of which material is now on exhibition at the American Museum of Natural History, New York.¹

Below, on the ground-level, is the circular altar described on pages 174-177, and figured in plate 21. As explained more fully there and as noted briefly above, it is probable that this altar was not originally correlated with Stela 1, but with some other monument now missing.

Stela 1 is about 2.75 meters long, 91 cm. wide and 76 cm. thick. Its front (west face) presents a large human figure; and its back and sides are inscribed with glyphs, on the basis of which arrangement of the design it is to be referred to Class 4. There is but one Initial Series introducing glyph at A1-B2 on the back (east face), and this is followed by the Initial Series 9.11.15.14.0 11 Ahau 8 Zotz, as follows:

A 1 B 2	Initial Series introducing glyph
A 3	9 cycles
B 3	11 katuns
A 4	15 tuns
B 4	14 ² uinals
A 5	0 kins
C 1	11 Ahau
C 2	8 Zotz

This date is just 14 uinals after a hotun-ending in the Long Count; and in D5b exactly this number of uinals is recorded. Finally, there follows next in D6 the date 4 Ahau 13 Mol, which is the ending-date of the previous hotun, 9.11.15.0.0 4 Ahau 13 Mol.

This distance-number of 14 uinals, therefore, is to be counted backward from the Initial Series instead of forward to reach the hotun-ending recorded. Secondary Series numbers which are to be counted backward are very unusual,³ and only the desire to bring the Initial Series terminal date back to the nearest hotun-ending could have justified this violation of precedent here.⁴ The coefficient of the day-sign in this hotun-ending date is also very unusual. It is neither the usual type of bar-and-dot numeral nor a head-variant. The number recorded is clearly 4 and is represented by 4 dots in a circular cartouche, thus . These slight irregularities, however, in no way destroy the accuracy of the above reading, and the date of Stela 1 may be safely accepted as 9.11.15.0.0 4 Ahau 13 Mol. This text has 12+9+9=30 glyph-blocks, the Initial Series introducing glyph occupying the space of 4 glyph-blocks, and a very curious glyph at the bottom of the Initial Series side, the space of 2 glyph-blocks . This is a unique variant of the hotun-sign, which further confirms the above reading as the correct date of this monument. The prefix,

¹ Gordon, 1896, pp. 36, 37.

² Maudslay's drawing (1889-1902, vol. 1, pl. 100, A, glyph 4) incorrectly shows 12 uinals. An examination of the original, however, proved that the two outside dots had the same interior circles as the two inside ones, and that all four are therefore numerical. Compare the dots in B4 with those in A3, B3 and C1, all of which show the same interior circle, for verification of this statement. In Maudslay's drawing also the month coefficient in C2 (*ibid.*, c, glyph 2) appears as 13; the original, however, is clearly 8.

³ For a discussion of the direction of the count in Maya numerical series, see Morley, 1915, pp. 136-138.

⁴ Several other cases of this kind occur both here at Copan (reviewing stand in the Western Court and Altars Q and W') and elsewhere, and the whole question has been reviewed in Chapter IV, p. 333.

although unusual, is probably an ending-sign, the superfix an ornamented numerical bar, *i. e.*, 5, and the main element, the winged-Cauac variant of the tun-sign. Note the "balls" in the upper right-hand corner and the half circle of dots at the bottom, both characteristics of the tun element in the hotun-sign.

The foundations of Stela 1, *i. e.*, the manner in which the cruciform chamber underneath is built into the stairway on the western side of Mound 9, are such as to necessitate that both stela and mound were erected at the same time, namely, 9.11.15.0.0 (the date of Stela 1); and if so, this monument is the earliest surely *in situ* at the Main Structure.

It has already been pointed out (pp. 107, 115, 125) that Stelæ E and P, even though the latter is still standing, are neither of them in the positions for which they were originally designed, but that, on the contrary, both had been removed to the Main Structure in ancient times from some other locality, probably Group 9.

There remain, however, two other monuments at the Main Structure, Stelæ 2 and 3, which are 15 years older than Stela 1, and which may possibly be *in situ*. Of the seven stelæ recording the date 9.11.0.0.0, these are the only two, except Stela 23 at Group 1, which have the human figure carved upon them, all the others being in Class 3. And it is conceivable for this very reason that these two may have had a greater value than the others in the eyes of the ancient inhabitants of the city, sufficient, indeed, to have insured their removal to the Main Structure from some earlier location after 9.11.0.0.0, like Stelæ E and P. In other words, all four of these monuments were too good to be left standing in outlying groups, once the Main Structure had become the principal settlement in the valley, and they were removed thither some time after 9.11.0.0.0, and the writer believes after 9.11.15.0.0, when Stela 1 was erected, and possibly even before the Great Plaza was laid out shortly after 9.12.5.0.0. The earliest stela erected at the Main Structure was probably one of these three, Nos. 1, 2, or 3, and of these, Stela 1, as the only one of the three indubitably *in situ* where found, has the best claims to this distinction. In any event, the Main Structure began to become the most important settlement in the valley about 9.11.0.0.0 or a little later, and Mound 9 is probably the oldest construction now extant there in anything like its original condition.

EAST ALTAR OF STELA 5.

Provenance:	Probably not <i>in situ</i> . Originally may have been associated with Stela 1 at the Main Structure. Now 1 kilometer west of the Main Structure in front of the east face of Stela 5 at Group 8. (See plate 3.)
Date:	9.11.15.0.0 4 Ahau 13 Mol. ¹
Text, drawing:	plate 20, <i>b</i> , and figures 28 and 29.
References:	Morley, 1917c, p. 287. Spinden, 1913, p. 161 and table 1.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

The East Altar of Stela 5 is 1.93 meters in diameter and 51 cm. high. It is broken into 9 pieces, of which 2, Fragments T and R¹ in figure 28, are still missing. When the writer first visited Copan in 1910, four fragments, S, U, W, and Z, were missing. The first two of these were found in 1915 in the modern stone wall just across the road from where this altar now stands, in front of the east face of Stela 5.

This wall was built some 20 or 30 years ago of faced stone blocks, and even sculptured pieces from ruined buildings in the immediate vicinity; and it had long been suspected that some of the missing pieces of Stela 5 and of its two altars might have been used in its construction. In 1912 Spinden found one of the most important pieces of Stela 5, that presenting the upper part of the Initial Series, embedded in this wall; and therefore it seemed advisable to search here for the other missing pieces. In 1915 a section of 125 meters—62 or 63 meters on either side of Stela 5—was taken down to its very foundations, and each stone examined for traces of sculpture; and in the course of this work two pieces of this altar were recovered, Fragment S from the wall itself and Fragment U from just east of Stela 5, half buried in the earth. Two pieces of the West Altar of Stela 5, Fragments Y and Z, figure 32, were also recovered at the same time. Unfortunately the piece presenting the missing part of the Initial Series on Stela 5 itself was not found.

In 1917 the second-growth bush north of Stela 5 was felled, and this parcel of land put into tobacco. During the course of the clearing two other fragments of this altar, W and Z, were recovered about 30 meters northeast of Stela 5. Fragment W (see figure 29)² presents Glyphs C, D, and E of the Supplementary Series. Fragment Z fitted in between Fragments S and Y.

The inscription on this altar is presented upon the periphery, the top and bottom being plain. There is a single band of 15 glyph-blocks, which completely encircles the stone. The order of reading within the individual glyph-blocks is again

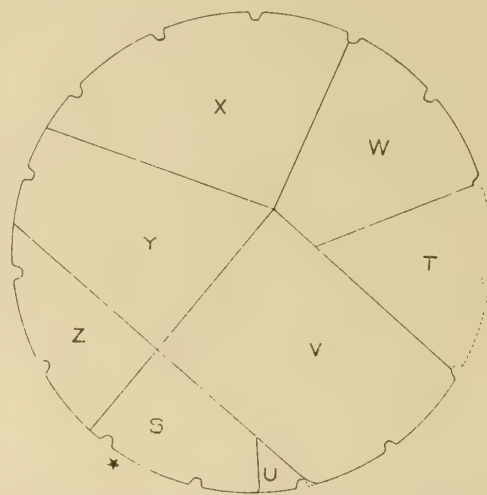


FIG. 28.—Top of East Altar of Stela 5 showing number of fragments into which it is broken.

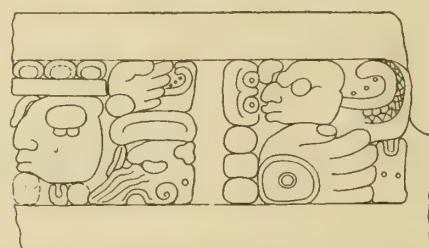


FIG. 29.—Inscription on Fragment W of East Altar of Stela 5.

¹ Fragment R originally came from just above Fragment U, and is not shown in figure 28.

² Fragment W is not shown on plate 20, *b*, which was made before this piece was discovered in 1917. A drawing of its two glyph-blocks, however, will be found in figure 29. These should occupy the third and fourth dotted squares to the right of the Initial Series in plate 20, *b*, *i. e.*, just to the left of Glyph X of the Supplementary Series.

unusual, being like that on Stela 3, *i. e.*, from top to bottom and left to right, and, unlike that on the altar of Stela 1, the inscription of which is composed like this, of a single band of glyph-blocks.

The text opens on Fragments S and U, and the missing Fragment T, with an Initial Series introducing glyph at A, plate 20, *b*, shown by the star in figure 28, and the next piece (plate 20, *b*, and Fragment V, figure 28) presents the cycles, katuns, tuns, and uinals of the corresponding Initial Series number. The cycle coefficient (*ba* u. h.) is missing, although it doubtless may be restored as 9. The cycle-sign itself is recorded in *ba* l. h. and traces of the clasped hand on the lower part of the face may still be distinguished. The katun coefficient (*bb* u. h.) is perfectly clear, but of unfamiliar form.



The tun coefficient (*ca* u. h.) is unusual; the head-variant numeral is itself very clearly the death's head, but this is preceded by a bar which ordinarily would have the value of 5, presumably $5 + 10$, since 5×10 , *i. e.*, uniting the two by multiplication, would give an impossible value for the tun coefficient. Leaving this point indeterminate for the present, however, let us continue the inspection of our text.




The uinal-sign and coefficient in *cb* are perfectly clear as 0 uinals. Note the clasped hand denoting 0 in the coefficient.

Unfortunately the next two glyph-blocks, *i. e.*, D and E, are missing, both being on the missing Fragment T (see figure 28). These, doubtless, recorded the kins and day of the Initial Series and the first two glyphs of the Supplementary Series. To compensate for this rather serious loss, however, the glyphs on Fragments W and X (figure 29 and plate 20, *b*) are unusually clear, and in a series of 10 consecutive characters they give sufficient data by which this altar may be dated. The first of these, *fa*, is Glyph E of the Supplementary Series, and there follow in *fb*, G, *ha*, *hb*, and *ia*, Glyphs D, C, X, B, and A of the Supplementary Series, respectively, the last, Glyph A, here having a coefficient of 9. Next, in *ib* follows the month-sign of the Initial Series terminal date, unusually clear as 13 Mol. Following this in *ja* is a well-known ending-sign, being almost identical with the forms used on Stelæ 12 and 2 (compare *ja* with the next to last glyph in plate 17 and the third to last glyph in plate 18), and after this in *jb*, the glyph meaning "End of a hotun." Finally, in *ka* and *kb* (the latter on Fragment Y) is the day 12 Ahau and another ending-sign. Fragment Z presents no decipherable glyphs, although *ma* is two katuns and *mb* is a familiar grotesque head of unknown meaning. The last glyph-block, O, that is on the left of the Initial Series introducing glyph, is on Fragment S again and has no decipherable signs.

Whatever the doubtful coefficients in the Initial Series number may be, there seems little doubt that we have recorded in *ib-j* the statement that the month of the Initial Series terminal date is "13 Mol," and further, that it fell on a hotun-ending. By referring to Goodman's tables, it will be found that the only hotun in Cycle 9 ending on a month position of 13 Mol within

a range of about 360 years, was 9.11.15.0.0 4 Ahau 13 Mol, the next earlier occurrence being in 8.13.10.0.0, and the next later in 10.10.0.0.0, both impossible dates, so far as Copan is concerned, and both impossible here because the hotun-sign and not the lahuntun-sign is recorded. And finally, the record of the day 12 Ahau just after this in *ka* may record the preceding katun-ending, *i. e.*, 9.11.0.0.0 12 Ahau 8 Ceh. Indeed, there is little doubt that 9.11.15.0.0 was the hotun recorded by this Initial Series, in spite of the irregularity of the tun coefficient, and the loss of the kin and day-signs.

Let us turn again to our Initial Series, and see how these values for the katun, tun, and uinal coefficients agree with those actually recorded on Fragment V (plate 20, *b*). The uinal coefficient in *cb* u. h. is surely 0, which agrees with the value for the corresponding coefficient obtained above. The katun coefficient (Bb u. h.) should be 11; unfortunately only two other occurrences of the head for 11 are known, namely, the katun coefficient on Lintel 2 at Piedras Negras  and the katun coefficient on Stela 6 at Yaxchilan . Although there appears to be no element common to both of these signs, both nevertheless are of the same type, namely, the normal human head, and to this extent the head in Bb u. h. may be said to resemble them.

The tun coefficient (*ca* u. h.) is composed of a head variant, clearly the death's head, denoting 10, preceded by a bar, possibly denoting 5, as already suggested. If we may join these two elements by addition, *i. e.*, $10 + 5 = 15$, forming a composite numeral, we will have the tun coefficient demanded by the corresponding Initial Series terminal date. But such a combination, *i. e.*, a bar-and-dot numeral joined with a head-variant numeral, is a new feature in Maya notation, and before it can be accepted, even in the face of the very strong evidence presented by the hotun-ending date in 1bJ, it is necessary to adduce other examples of its occurrence. Fortunately several such may be cited. The customary way to have expressed the number 15 would have been either by 3 bars  or, since all the other coefficients in this text are head-variant numerals, by the head for 10 + the head for 5 . Neither, however,  was employed in the present instance, but instead a combination of the two seems to have been used.

One other instance of this kind has already been noted, namely, the tun coefficient of the Initial Series on Stela 12. (See plate 17, A4, and pp. 135, 136.) Unfortunately this example is doubtful, since the numerical bar inclosed in an oval above the death's head is partially effaced. If it is a bar at all, however, the parallel is complete between these two cases, both being tun coefficients in Initial Series and both expressing the same number, 15, in the same unusual way—a bar joined to a death's head.

Other examples, not in Initial Series, however, may be cited. The first and most striking of these is in the Supplementary Series from the Temple of the Cross at Palenque, but in order to bring this point out, it is

necessary to compare this text glyph by glyph with the Supplementary Series from the neighboring Temple of the Foliated Cross. In figure 30 these two Supplementary Series are shown side by side, the upper line being that



FIG. 30.—Two Supplementary Series at Palenque, from: *a-f*, Temple of the Foliated Cross; *a'-f'*, Temple of the Cross.

from the Temple of the Foliated Cross and the lower line that from the Temple of the Cross. Commencing at the right¹ and reading from right to left, the last glyph in each line, *f* and *f'*, respectively, are the same, namely, Glyph A, the last glyph of the Supplementary Series, shown with a head-variant coefficient of 10 in *f* and with a bar-and-dot coefficient of 9 in *f'*. The next glyphs (to the left), *e* and *e'*, are also the same, being in each case the next to the last glyph of the Supplementary Series, Glyph B. The next glyphs, *d* and *d'*, are different, as would be expected. As the writer has shown elsewhere,² the third position from the right in Supplementary Series is occupied by a number of different glyphs, hence the name variable glyph (*i. e.*, Glyph X) by which the signs occupying this position have been designated. The next glyphs, *c* and *c'*, are the same, being Glyph C of the Supplementary Series, regularly found in the fourth place from the right. Let us pass over the next glyph, *b*, in the upper line, and the next two, *b''*, *b'*, in the lower line, and come to the last glyph in each line, *a* and *a'* respectively, which are the same, Glyph F of the Supplementary Series. Immediately preceding these signs in the two texts from which these passages are taken are the month-signs of their respective Initial Series terminal dates. In other words, barring the glyphs passed over, the signs in the two passages are the same and stand, moreover, in the same relative order to each other.

Let us next examine the glyphs omitted in our preliminary inspection, *b*, *b'*, and *b''*. The former, *b*, is a grotesque head standing on its end—a very unusual position for head-variants—with a coefficient of 10, *i. e.*, 2 bars. The right-hand glyph of the pair in the lower line, *b''*, is exactly the same head as the one in *b*, and also stands on its end in exactly the same unusual manner, evidently a characteristic of the glyph, whatever it may be. In the lower line, however, at first sight it appears to have no coefficient.

¹ The regularity in the sequence of the glyphs of the Supplementary Series is more apparent reading from right to left than *vice versa*, for which reason this order is followed here. See Morley, 1916, p. 369.

² See Morley, 1916, pp. 374-376.

This leaves but one glyph unexplained, *b'*, *i. e.*, the one immediately preceding the foregoing. This is composed of a bar, *i. e.*, 5, prefixed to a very clear death's head, which is in every way similar to the death's heads representing the number 10 found elsewhere. We would appear to have in this glyph, then, a composite numeral, a bar-and-dot 5 joined to a head-variant 10 exactly as in the tun coefficients on the East Altar of Stela 5 and probably Stela 12. Compare Glyph *b'*, figure 30, with *ca u. h.*, plate 20, *b*, and it will be found that the parallel is complete. But we have already seen that in the latter case these are strong—indeed well-nigh irrefutable—reasons for believing that these two numerical elements are joined by addition, and not by multiplication, which, if true, would give for *b'* the meaning 15, *i. e.*, $5 + 10 = 15$.

Moreover, the right-hand glyph, *b''*, has no coefficient at all, whereas the same glyph in the upper line, *b*, has a coefficient of 10. Therefore it seems not unlikely that Glyph *b'* may be joined to *b''*, making 15 times the grotesque head for the lower line instead of 10 times, as it is in the upper line. That these two numerals, one a bar-and-dot and the other a head-variant, are joined to each other by addition and to the glyphs they modify by multiplication, is probably true here. Moreover, such an arrangement completes the parallel between the upper and lower lines, since in this event there would then be only 6 glyphs in each of these Supplementary Series, and the fifth glyph in each, counting from the right, *i. e.*, *b* and *b'b''*, would then be the same, having a coefficient of 10 in the upper line and of 15 in the lower line.

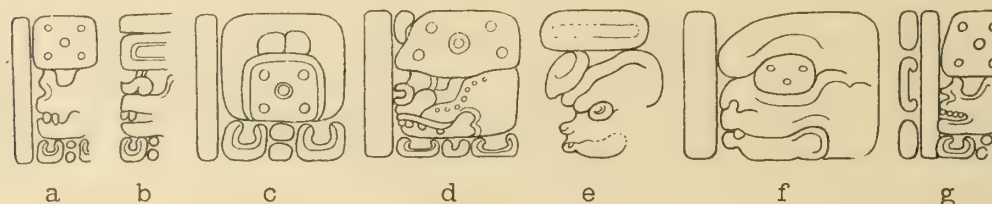


Fig. 31.—Glyphs showing composite numerals from: *a* and *g*, Yaxchilan, Lintel 21; *b*, Yaxchilan, Lintel in Berlin Museum; *c*, Yaxchilan, Lintel 29; *d*, Palenque, Temple of the Cross; *e*, Copan, Stela 12; *f*, Copan, East Altar of Stela 5.

The other examples (see figure 31) are all from Supplementary Series at Yaxchilan, where use of this composite type of numeral seems to have been quite common. The first example (figure 31, *a*) is from Lintel 21, Structure 22. Here a bar is prefixed to a death's head, this composite numeral being attached to a sign which, the writer has shown elsewhere,¹ is a variant of the kin-sign. The whole glyph would appear to record 15 kins. Notice should be taken of the five dots in the death's head, also a characteristic of the death's head in the Palenque text. (See figure 30, *b'*, and figure 31, *g*.)

The second example (figure 31, *b*) is from a lintel in the Berlin Museum. Again there is the same bar, here standing above the same death's head;

¹ Morley, 1916, pp. 369, 385-387.

and again this glyph is attached to the same variant of the kin-sign, the meaning probably being 15 kins.

The third example (figure 31, *c*) is from Lintel 29, Structure 10. In this case a variation has been introduced. The bar, instead of being prefixed to a head, is prefixed to a sign, the principal element of which is five dots. Can this be a substitute for the death's head, which has the same characteristic in figure 31, *a*, *d*, and *g*, a sort of glyphic synecdoche wherein a part, *i. e.*, the five dots, is used for the whole, *i. e.*, the death's head? At any rate, this glyph is again attached to the same variant of the kin-sign, and the writer has little hesitancy in reading the two characters as 15 kins.

The foregoing six examples, *i. e.*, including the one from Palenque and the two from Copan, *d*, *e*, and *f*, figure 31, respectively, are all composite forms for the number 15, that is, single bars prefixed to death's heads. There is one example, however (figure 31, *g*), of a composite 17, which would seem to indicate that other numbers beside 15 could be formed in this same unusual way. This is also from Lintel 21, Structure 22 at Yaxchilan, and has a bar-and-dot numeral 7 prefixed to a death's head with the same five dots in the upper part of the latter, the resulting number being 17.

Reviewing these seven examples, two from Copan, four from Yaxchilan, and one from Palenque, it will be seen that they are fairly well scattered geographically (plate 1), and moreover, that insofar as three of them are concerned (figure 31, *a*, *d*, and *g*) the dots in the head appear to be an important characteristic. They constitute, the writer believes, sufficient evidence to prove the existence of these composite numerals, and to demonstrate their use in certain rare instances. Indeed, in the present case the burden of proof would certainly appear to rest upon those who decline to recognize in *ca u. h.*, plate 20, *b*, the numeral 15, irregularly as it is there expressed, since the record of the month-sign, 13 Mol, and the "End of a hotun" in 1a-j render any other reading practically impossible. When we attempt to explain why this unusual variant should have been used in this particular text, however, we enter upon uncertain ground. The following possible explanation, therefore, is advanced only as a suggestion.

The sculptor of this monument knew that if he used the head-variant for 15 he would have to carve a death's head with a tun-sign for its head-dress. Inasmuch as all the period glyphs and their coefficients are head-variants, in this text it is probable on artistic grounds that a simple bar-and-dot numeral 15 could not have been contemplated here. On the other hand, to have recorded a head-variant 15 in the space available would have resulted in an unsightly contraction (a flattening) of the death's head, to make room for the tun head-dress, which would have thrown it badly out of line with the heads in the cycle, katun, uinal, and kin coefficients. In short, artistic considerations may have weighed so heavily against such a violation of symmetry that the sculptor took the only other course open to him, namely, that of recording the number 10 as a head variant and then prefixing a bar to it, *i. e.*, 5, making 15, as required by the calculations.

Such a departure from regular practices must necessarily have been due to an unusual circumstance, perhaps such as this, and if this explanation really explains the situation, it is but another example of that broad principle found applying throughout the Maya hieroglyphic writing, namely, the extraordinarily coercive influence of artistic considerations in glyph delineation.¹

But after all, the task of accounting for this unusual departure from regularly established practices is not so important as the recognition of its existence here, from which, in view of the decisive evidence presented, we can hardly escape, and we may therefore accept 9.11.15.0.0 4 Ahau 13 Mol as the date of this altar. A summary of the text follows:

A	Fragments S, R, and U,	Initial Series introducing glyph
Ba	Fragment V	9 cycles
Bb	Fragment V	11 katuns
Ca	Fragment V	15 tuns
Cb	Fragment V	0 uinals
Da	Fragment T (missing)	(0 kins)
Db	Fragment T (missing)	(4 Ahau)
Ib	Fragment X	13 Mol
J	Fragment X	End of a hotun
Ka	Fragment X	12 Ahau (perhaps 9.11.0.0.0 12 Ahau 8 Ceh)

The above date is the same as that on Stela 1 just described, and this chronologic coincidence at once raises the interesting question as to whether or not this altar may originally have been associated with Stela 1 instead of Stela 5. It will be shown in the description of the latter that it was not erected until 35 or 40 years later than either of the two altars now associated with it, which might be taken as indicating that neither was designed originally for use with it. Similarly, the altar now associated with Stela 1 marks a later hotun-ending, *i. e.*, 9.12.0.0.0 (see p. 176), than the stela itself. It therefore appears not unlikely that the East Altar of Stela 5 itself may have been associated with Stela 1 originally. The points in favor of this association are summarized below:

1. The same hotun-ending 9.11.15.0.0 is unmistakably recorded on both.
2. The stela with which this altar is now associated (Stela 5) was not erected until 40 years after the date on this altar.
3. The altar now associated with Stela 1 similarly records a later hotun-ending than Stela 1, and one, moreover, which is also recorded on another altar, namely, the West Altar of Stela 5. (See p. 173.)
4. Finally, all the other altars of this type, except the altar of Stela 13 and the altar of Stela 19,² which is fragmentary, namely, the altars of Stelæ E, I, and J and the West Altar of Stela 5, record hotun-endings; and in the case of two, the altars of E and J, they are still associated with their original stelæ.

This whole question, of course, hinges upon whether Stela 1 is *in situ* where it was first found at the Main Structure, or whether it was carried

¹ Morley, 1915, pp. 23, 24.

² As already pointed out (pp. 145, 146), this altar probably brought the Initial Series of the stela with which it is associated, *i. e.*, 9.10.19.15.0, forward to the next hotun-ending, *i. e.*, 9.11.0.0.0.

thither in ancient times from somewhere else, its altar at the same time or later being removed to Group 8, where it now stands. There can be little doubt but that Stela 1 was erected on the western slope of Mound 9 when the latter was built, since the foundations of the monument extend down into the body of the mound. The Great Plaza to the north, however, was certainly not started until at least 10 years later, and possibly even longer. Perhaps this suggestion should be developed no farther than to point out the possibility that inasmuch as Stela 1 and the East Altar of Stela 5 both record the same hotun-ending, they may have been associated with each other, at Mound 9, and possibly even at some other group, although the latter contingency appears very unlikely.

WEST ALTAR OF STELA 5.

Provenance:	Probably not <i>in situ</i> . Originally may have been associated, together with the altar of Stela 1, with some stela now missing. Now 1 kilometer west of the Main Structure, in front of the west face of Stela 5 at Group 8. (See plate 3.)
Date:	9.12.0.0.0 10 Ahau 8 Yaxkin. ¹
Text, drawing:	plate 20, <i>a</i> .
Reference:	Spinden, 1913, p. 161, and table 1.

The West Altar of Stela 5 is 1.68 meters in diameter and 63 cm. high. It is broken into one large piece (Fragment X, figure 32), which represents more than five-sixths of the altar, and four or five smaller pieces, of which two, Fragments Y and Z, were recovered during the examination of the stone wall referred to under the preceding monument. One of the latter, Fragment Y, was of great importance, since its discovery alone made possible the reading here suggested for this Initial Series.

The inscription is presented upon the periphery, the top and bottom being plain. (See plate 20, *a*.) The glyph-blocks are arranged in two horizontal rows, which completely encircle the stone, there being 16 glyph-blocks in each row or 32 for the entire text. This is the same presentation as that on the altar of Stela E, and, as in the case of the latter, the order of reading the glyph-blocks is from left to right and top to bottom in pairs of columns.

The inscription opens on Fragment X (see the star in figure 32), with the Initial Series introducing glyph at A1, plate 20, *a*; and following this in B1*a* are recorded 9 cycles and in B1*b* ? katuns, the katun coefficient being surely

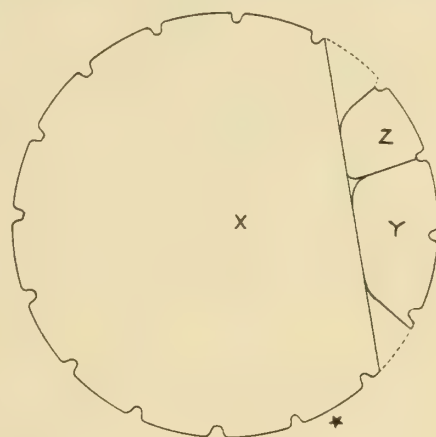


FIG. 32.—Top of West Altar of Stela 5, showing the number of fragments into which it is broken.

¹ For other monuments recording this hotun-ending, see Appendix VIII.

above 5 and probably under 11. The tun-sign and coefficient in *A2a* are partially effaced, although enough remains of the latter to show that it must have been either 14 or 19, *i. e.*, either 4 dots and 2 bars or 4 dots and 3 bars.

The uinal-sign, *A2b* l. h., is entirely effaced, but very fortunately its coefficient, *A2b* u. h., is well preserved. This is a head-variant numeral, showing the fleshless lower jaw clearly. The rest of the head has no other death's-head characteristics, and it would seem as though this number must be from 13 to 19 inclusive.¹ Of these, 13, 15, 16, 18, and 19 may probably be eliminated, since this head resembles none of the known forms for these numbers, and there are left only 14 and 17. The head in *A2b* u. h. looks very much like the latter. Note the scroll under the eye, and the large ornament which may be a continuation of it in front of the forehead, the typical pupil, and the Roman nose. Compare this head with the forms for 17 shown in Morley, 1915, figure 53, or Bowditch, 1910, plate 17. The best reading for the uinal coefficient, therefore, is 17, and next 14, although 10, 13, 15, 16, 18, and 19, and even 0, should be considered as remoter possibilities in the order named.

The kin-sign and coefficient at *B2a* are very clear. The latter is surely either 11, 12, or 13, with either 11 or 12 preferable to 13. As will appear later, this number can only be 11. The next glyph, *B2b*, is Glyph G, the first sign of the Supplementary Series. The next glyph-block, *c1*, is missing, all except a small part of its right-hand edge, which appears on the left side of Fragment Y. Although *D1* is much effaced, it doubtless presented Glyphs X and B of the Supplementary Series.² *c2* is missing, all but its right-hand edge, which shows a part of the day-sign of the Initial Series terminal date; the last glyph of the Supplementary Series doubtless was at *c2a*.

The most important glyph on Fragment Y is *D2a*, the month of the Initial Series terminal date. In spite of some little weathering, this may be surely identified as either 9 Mol or 14 Mol, with the latter as the preferable reading. Gathering together these data, we have for this Initial Series:

<i>A1</i>	Initial Series introducing glyph
<i>B1a</i>	9 cycles
<i>B1b</i>	6, 7, 8, 9, or 10 katuns
<i>A2a</i>	14 or 19 tuns
<i>A2b</i>	17, 14, 10, 13, 15, 16, 18, 19, or 0 uinals
<i>B2a</i>	11 kins ³
<i>C2b</i>	?
<i>D2a</i>	9 or 14 Mol

¹ While the numerals 13 to 19 inclusive invariably have the fleshless lower jaw, with the exception of 13, for which there are two forms, they very rarely show other death's-head characteristics like the head for 10, which, in addition to the fleshless lower jaw, usually has the truncated nose, prominent upper teeth, and large bony eye-socket.

² As shown in plate 20, *a*, *D1* looks more like Glyph A of the Supplementary Series than Glyphs B or X. This is probably due to faulty drawing, as Glyph A was almost certainly at *c2a*, now lost. This fragment (Y) is in very bad condition.

³ Our inspection of the text showed that the kin-coefficient might be either 11, 12, or 13, but as the month-coefficient in *D2a* is surely 9 or 14, the kin-coefficient can only be 11, since 11 is the only one of these three numbers which, if counted forward from a day Ahau (*i. e.*, 4 Ahau 8 Cumhu from which all Initial Series start; see Morley, 1915, p. 136), can possibly reach a month-coefficient of 9 or 14. The other two readings, therefore, 12 and 13, are impossible values here.

It can be found by calculation that there are only seven possible dates in Cycle 9 which fulfill all the given conditions, namely:

(1)	9.12.14. 4.11	6 Chuen	9 Mol
(2)	9.13.14. 9.11	13 Chuen	9 Mol
(3)	9.14.14.14.11	7 Chuen	9 Mol
(4)	9.15.19. 2.11	5 Chuen	9 Mol
(5)	9. 6.19.12.11	2 Chuen	14 Mol
(6)	9. 7.19.17.11	9 Chuen	14 Mol
(7)	9.15.14. 1.11	5 Chuen	14 Mol

Before choosing between these, let us continue the examination of our text, since it is obvious that none of the above dates can end hotuns of the Long Count, and, consequently, none are likely to have been the contemporaneous date of this altar.

Unfortunately the next glyph-block, E1, is entirely effaced, and the next five, F1-G1, G2, are missing. The other half of the altar is very badly weathered, so that it is impossible to make out the details of any of the following glyphs: H1, H2-M1. Beginning with N1*b*, however, they are somewhat better preserved. M2*b* is a sign usually connected with the terminal dates of Secondary Series, and N2 is a Calendar Round date. In spite of some weathering here, the day 10 Ahau can clearly be distinguished in N2*a* l. h., and the month 8 Yax or 8 Yaxkin in N2*b*. Following this in O1*a* is an ending-sign, and in O1*b*, the day 11, 12, or 13 Ahau.

Although the hotun glyph itself is wanting, it is fair to infer from antecedent probability that this date 10 Ahau 8 Yax or 10 Ahau 8 Yaxkin ended some hotun of the Long Count. Referring to Goodman's tables, it will be found that no hotun or even a tun ended on the former date, whereas not only a hotun, but a katun as well, ended on the latter, namely, 9.12.0.0.0 10 Ahau 8 Yaxkin. Moreover, there are two other points in the original, which strongly indicate that the latter is the correct reading here:

1. The month-sign in N2*b* is almost certainly Yaxkin and not Yax. Not only do traces of the wing element appear to the right, but also the upper point of the kin element may be distinguished just below the Yax element; and
2. If the day in O1*b* is 12 Ahau, as seems probable, it would indicate the preceding katun-ending, exactly as in the case of the East Altar of Stela 5, namely, 9.11.0.0.0 12 Ahau 8 Ceh.

These several points taken together probably establish the date of this altar as having been 9.12.0.0.0 10 Ahau 8 Yaxkin.

The next point to determine is the Initial Series of this altar, for which our preliminary inspection of the text gave us seven possible readings. Since the contemporaneous date of the monument is probably 9.12.0.0.0, all but the fifth and sixth readings above may probably be eliminated, as they are from 14 to 74 years later than the hotun this altar was erected to commemorate. But in addition to this, all of them are open to one or more other serious objections which, even in the absence of the one just given, would otherwise eliminate them.

In the case of the first, the uinal coefficient can not be 4; in the second, it can not be 9; in the fourth, it can not be 2; and in the third, although it might be 14, it is better as 17. Again, another point against all four is that the month-coefficient recorded is possibly better as 14 than as 9. Finally, in the case of the last, although its month-coefficient is 14, its uinal-coefficient is 1, and it also must be eliminated. Similarly the fifth value above, although historically probable in that it is prior to 9.12.0.0.0 and its month-coefficient, 14, must be eliminated because its uinal-coefficient is 12. This leaves as the only possible date for this Initial Series the sixth reading above, namely, 9.7.19.17.11 9 Chuen 14 Mol. Three points in the text itself strongly favor this reading. In the first place, the uinal coefficient is very much better as 17 than anything else; indeed, in our preliminary inspection this value was given a strong preference over every other. In the second place, this reading is only 9 days earlier than a katun-ending in the Long Count, *i. e.*, 9.8.0.0.0 5 Ahau 3 Chen; and in the third place, from what little remains of the day of the Initial Series terminal date in *c2b*, it is evident that its coefficient must have been above 5, which eliminates the fourth, fifth, and seventh readings. All things taken into consideration, therefore, we are probably justified in accepting the sixth reading above as the correct value for this Initial Series. A summary of the text follows:

A1-B2a, C2b, D2a	9. 7.19.17.11	9 Chuen 14 Mol
N2	(9.12. 0. 0. 0)	10 Ahau 8 Yaxkin
O1a	Ending (previous katun)	
O1b	(9.11. 0. 0. 0)	12 Ahau [8 Ceh]

The Initial Series date is of course too early to be the contemporaneous date of the altar on stylistic grounds; but not so with the closing date, which we have already seen was much later. Probably one or more Secondary Series in the effaced glyphs H1, H2-M1 connected this rather early Initial Series with the contemporaneous date some 80 years later.

The latter date is still some 35 years earlier than the date of Stela 5, with which it is now associated. This probably indicates that this altar was originally associated with some other stela; but as this question can not be properly presented until after the altar of Stela 1 has been described, further discussion of the point will be deferred until later.

ALTAR OF STELA 1.

Provenance:	Probably not <i>in situ</i> . Originally may have been associated, together with the West Altar of Stela 5, with some stela now missing. Now in front of Stela 1 on the west side of Mound 9 at the Main Structure. (See plate 6.)
Date:	9.12.0.0.0 10 Ahau 8 Yaxkin. ¹
Text, (a) photograph:	plate 21.
(b) drawing:	plate 21. Gordon, 1896, figure 6.
References:	Gordon, 1896, p. 41. Maudslay, 1889-1902, vol. 1 of text, p. 66. Spinden, 1913, pp. 161, 164, and table 1.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

The altar of Stela 1 is about the size of the East and West Altars of Stela 5.¹ It now lies broken in two pieces in front (west) of Stela 1 on the western side of Mound 9 at the Main Structure. Says Maudslay in describing it: "A circular altar with an almost obliterated inscription was lying beside the fallen stela (1)."²

It is indeed very fortunate, therefore, that the only parts of this text sufficiently preserved to decipher (see plate 21) should be the beginning and end, part of the Initial Series and the closing Period Ending date.

The inscription is presented on the periphery in a single band of glyphs, which, however, does not entirely encircle the stone, as in the case of the drum-shaped altars previously described, there being a blank space perhaps a meter long at the back. Of the eleven glyph-blocks into which this band is divided, two are completely effaced, two others almost so, and three others very badly damaged.

The order of reading within the individual glyph-blocks, at least in the case of the second, third, and fourth, B, C, and D respectively, *i. e.*, those presenting the Initial Series number, is different from that on the East Altar of Stela 5, the only other altar showing the same glyphic presentation. There, it will be remembered, the order within the glyph-blocks was from top to bottom and left to right, as in the case of Stela 3; here, on the other hand, the order is just the reverse, being first from left to right and then from top to bottom.

Bearing this difference in mind, let us proceed with the decipherment of the text. A is the Initial Series introducing glyph, and B u. h. the cycle-sign and coefficient. The clasped hand on the lower part of the face in Bb u. h. clearly indicates the former, and the dot on the lower part of the face in Ba u. h. indicates the usual cycle coefficient of 9.

The katun-sign and coefficient in B l. h. are equally clear, the latter, Ba l. h., being 9. (Note the three dots in the double circle on the lower part of the cheek.) The next glyph-block, C, unfortunately, is badly weathered, though happily both of the coefficients may be distinguished with little difficulty. (See plate 21, Ca u. h. and Ca l. h.) Both are alike and probably record the numeral 10. (Note the fleshless lower jaw and prominent upper teeth, both characteristic of the head variant for 10.) Compare these two glyphs with the katun coefficient of Stela 12, for example (plate 17, B3a).

The kin-sign and coefficient in D u. h. are entirely effaced, and the day-sign and coefficient in D l. h. practically so; and with the complete destruction of the next two glyph-blocks, E and F, and the subsequent loss of the month of the Initial Series terminal date, the last means of dating this Initial Series to the exact day are gone. However, even in spite of the loss of the kin coefficient, the other coefficients are sufficiently clear to date it

¹ Unfortunately the dimensions of this altar were not secured. The drawing in plate 21 shows that it is 36 cm. high, and the diameter is doubtless between 1.5 and 2 meters.

² Maudslay, 1889-1902, vol. 1 of text, p. 66.

within 19 days, as 9.9.10.10.?. Furthermore, since the kin coefficient is usually 0, we may probably decipher this Initial Series further as 9.9.10.10.0 7 Ahau 13 Zac, with 19 days as the maximum error possible.

This date is neither a hotun-ending nor even a tun-ending, however, and for that reason, if for no other, it is hardly to be considered as the contemporaneous date of the altar. Continuing the inspection of our text, the remains of a Secondary Series are clearly to be distinguished in *gbH*. The uinal-sign shows very clearly in *Ha* and part of a tun or katun sign in *Hb*. Unfortunately the coefficients are destroyed. In *I* is a Calendar Round date, ? ? ? Yaxkin, the second doubtful element probably being the day-sign Ahau. Finally, in *J* is recorded very clearly and unmistakably "The End of Katun 12." The ending-sign is the familiar hand, with the tassel-like postfix and subfix with curl infix, and the Katun 12 itself has the familiar ending superfix or prefix.

By referring to Goodman's tables, it will be found that Katun 12 of Cycle 9 ended on the date 10 Ahau 8 Yaxkin, viz, 9.12.0.0.0 10 Ahau 8 Yaxkin, which agrees exactly with the month-sign recorded in *ib*, as far as it is preserved; and in spite of the fact that both of the coefficients are missing, we are doubtless justified in restoring them as 10 and 8 respectively, and in assigning this altar to the katun-ending 9.12.0.0.0.

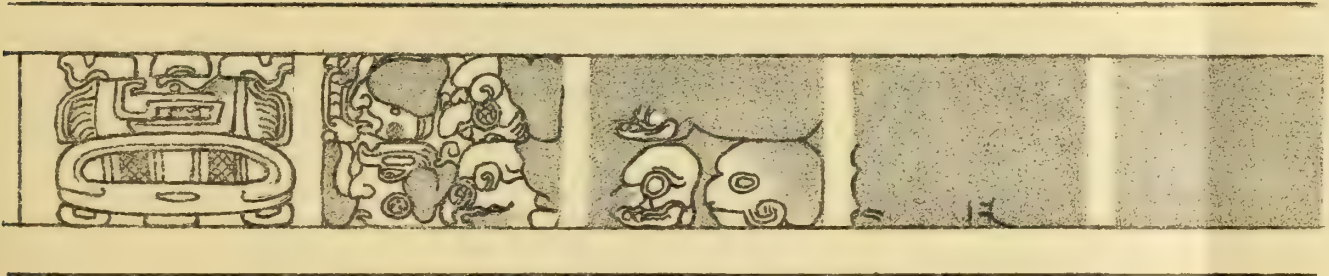
It seems probable that there was but one Secondary Series on this altar, because a Supplementary Series of the usual length, *i. e.*, 7 or 8 glyphs, would fill most, if not all, of *E* and *F*, and there would have been room for no more glyphs between *F* and *Gb*, which begins the Secondary Series noted above, *i. e.*, *gbH*. Therefore, if the coefficients of this Secondary Series had been preserved, we could probably have obtained the exact value of the Initial Series terminal date by subtraction. As it is, we may possibly fill in these missing coefficients as follows: 2.9.8.0, viz:

9. 9.10.10.0	7 Ahau 13 Zac (?)
2. 9. 8.0	
9.12. 0. 0.0	12 Ahau 8 Yaxkin

The last glyph-block, *K*, is undecipherable, although *ka l. h.* is the head of God C, which also appears on the altar of Stela I at *Hb*. (See plate 22, *c.*) A summary of this text follows:

A-Da	9. 9.10.10.0	7 Ahau 13 Zac (?)
GbH	2. 9. 8.0	(?)
I	9.12. 0. 0.0	10 Ahau 8 Yaxkin
J	End of Katun 12	

We have seen that the East Altar of Stela 5 and Stela 1 both record the same hotun-ending, namely, 9.11.15.0.0, and therefore originally may have been associated with each other. Furthermore, we have seen that the date of the West Altar of Stela 5 is the same as the date of this altar, namely, 9.12.0.0.0. It therefore seems not improbable that these last two altars also may have been formerly associated with some stela which was erected to commemorate this hotun-ending. It must be admitted, however, that such a stela has yet to be found.



Altar of Stela 1. Inscription on the periphery. Drawn from the original.

Perhaps the fact that we have two altars dating from this hotun may indicate that no stela recording this date was ever erected. That is, the sculptural effort usually expended in the erection of a stela and its accompanying altar may in this particular hotun have been devoted to the making of two altars instead. It is very unlikely that a stela marking this particular hotun may still lie buried somewhere in the valley. What is more probable is that it has been destroyed and its two altars devoted to other uses, one being placed in front of Stela 1 and the other in front of Stela 5.

STELA I.

Provenance:	In a niche or recess in the western steps of the platform at the east side of the Great Plaza at the Main Structure. The associated altar is just in front of the stela, <i>i. e.</i> , on its west side. (See plate 6.)
Date:	9.12.5.0.0 3 Ahau 3 Xul.
Text, (a) photograph:	Maudslay, 1889-1902, vol. 1, plates 62-64.
(b) drawing:	plate 22, <i>c</i> (altar only). ¹ Maudslay, <i>ibid.</i> , plate 65. Stephens, 1841, vol. 1, plate facing p. 151 (front only).
References:	Bowditch, 1910, pp. 136, 140, 243, and table 31. Goodman, 1897, p. 131. Gordon, 1896, pp. 35, 36. Maudslay, 1889-1902, vol. 1 of text, pp. 52, 53. Seler, 1902-1908, vol. 1, p. 757. Spinden, 1913, pp. 157, 161, and table 1. Stephens, 1841, vol. 1, p. 151. Thomas, 1904, p. 223.

Stela I stands in a niche or recess in the terrace, which forms the eastern side of the Great Plaza. That it was erected here before the construction of this terrace is evident from the fact that the terrace is built around the monument.

This offset is of considerable importance, therefore, in determining the age of the Great Plaza, since the date of Stela I, which made it necessary, is known to be 9.12.5.0.0, and therefore the Great Plaza must have been built or laid out at some later period.

The front of the monument is sculptured with a human figure, the most elaborate yet encountered, and the back and sides are inscribed with glyphs, on the basis of which arrangement it may be assigned to Class 4. It is 2.76 meters high, 84 cm. wide, and 58 cm. thick. When Stephens visited Copan in 1839, it was entire and *in situ*,² but when Maudslay went there forty years later, it had been broken and the upper part had fallen forward, though the base was still in position.

In front of the stela a cruciform chamber was discovered by the Peabody Museum Expedition, like those underneath Stelæ 7, 1, M, and C. This was found to contain five beautifully painted pieces of pottery, two being

¹The title of plate 22, *c* incorrectly reads Altar of Stela I, instead of Altar of Stela I.

²"It stands at the foot of a wall of steps with only the head and a part of the breast rising above the earth. The rest is buried and probably as perfect as the portion which is now visible. When we first discovered it, it was buried up to the eyes." (Stephens, 1841, vol. 1, p. 151) It is there described as Statue T.

of cylindrical shape and decorated with representations of the human figure, which are now in the Peabody Museum at Cambridge.¹

The associated altar is of the drum-shaped type and stands directly in front of the stela. It has a single band of glyphs which extends clear around the periphery.

The text on the stela opens with an Initial Series introducing glyph in A1-B2, and the corresponding Initial Series number follows in A3-B5, A8. This records the date 9.12.3.14.0 5 Ahau 8 Uo as follows:



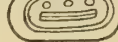
A1-B2	Initial Series introducing glyph
A3	9 cycles
B3	12 katuns
A4	3 tuns
B4	14 uinals
A5	0 kins
B5	5 Ahau
A8	(8 Uo) effaced

It is all clear, with the exception of the month-part (A8), which is unfortunately effaced.

The north side of the monument opens with the date 10 Ahau 13 Yax, Chen, Zac, or Ceh (c1), the uncertainty as to the month-sign arising from the effacement of its prefix. These four dates occurred in Cycle 9 nearest the Initial Series of this monument as follows:

9.12.7.4.0	10 Ahau 13 Chen.	9.12.19.9.0	10 Ahau 13 Zac
9.11.7.0.0	10 Ahau 13 Yax	9.11.19.5.0	10 Ahau 13 Ceh

Of these, only two, the second and fourth, appear to have anything which may be urged in their favor. For example, the second, 9.11.7.0.0, ends a tun of the Long Count, always a recommendation for any date. The last, however, 9.11.19.5.0, is not only the nearest to the Initial Series, but is also exactly 1 tonalamatl, or 260 days, before the nearest katun-ending (9.12.0.0.0), for which reasons it has been selected in preference to the others.

In c6 there is a distance-number composed of 10.8, the kin-coefficient being expressed in a very unusual manner . If this is counted forward from 10 Ahau 13 Ceh, the date reached  will be 10 Ahau 16 Zotz. The day 10 Ahau is recorded in c7a  very clearly, but c7b is not 16 Zotz or any month-sign in fact, and it is evident that the month-sign has been suppressed here. The remaining glyph-blocks on this side are effaced. Using the Initial Series suggested above for 10 Ahau 13 Ceh, the Initial Series of 10 Ahau 16 Zotz may be calculated therefrom as follows:

9.11.19. 5.0	10 Ahau 13 Ceh
10.8	
9.11.19.15.8	10 Ahau 16 Zotz

This distance-number is just four-fifths of a tonalamatl, and brings the count up to within one-fifth of a tonalamatl (52 days) of a katun-ending. Because of this coincidence, which could hardly be accidental, and because

¹ Gordon, 1896, p. 36.

it is the nearest to the Initial Series of the stela as already stated, the writer believes the date recorded in *c1* is 9.11.19.5.0 10 Ahau 13 Ceh and the date in *c7*, 9.11.19.15.8 10 Lamat (16 Zotz).



The south side of Stela I shows some familiar glyphs, but none of calendric significance so far as known, except perhaps the lower part of *D2a* which may possibly be the Cauac variant of the tun-sign. This text has $15+9+9=33$ glyph-blocks, the Initial Series introducing glyph occupying the space of 4 glyph-blocks.

The altar of this monument, as already explained, continues the inscription on the stela. Two bands at right angles to each other cross over the center of the top and extend down over the sides, dividing the periphery into four quadrants of 3 glyph-blocks each, or 12 in all. As each glyph-block has 2 glyphs, there are 24 glyphs on the altar and 45 glyph-blocks in the entire text. (See plate 22, *c*.)

The text commences with the first glyph-block of the present northwest quadrant,¹ (*A*, plate 22, *c*), only a small part of which is preserved. Enough remains, however, to show that it presents the introducing glyphs of a Secondary Series, which follows immediately in *B* and *ca*. In spite of some effacement in the former, the coefficients are still clear, and this number is surely 1.4.0. The last glyph in this quadrant, *cb*, is the day 3 Ahau, and following this in the first glyph of the next quadrant, *Da*, is 3 Xul, and in the next, *Db*, "the end of a hotun." The meaning of these last three glyphs is perfectly clear, namely, that on the date 3 Ahau 3 Xul a hotun of the Long Count came to an end.

Referring to Goodman's tables, it will be found that only one hotun in Cycle 9 came to an end on this date, namely, 9.12.5.0.0 3 Ahau 3 Xul, and this hotun, moreover, is only 1.4.0 later than the Initial Series of Stela I. But we have just seen that this latter number was recorded in *B-ca*, and the meaning here, therefore, is unmistakable. The Secondary Series on the associated altar brings the Initial Series terminal date of the stela—the latter not a hotun-ending—forward to the next hotun-ending, *i. e.*, 9.12.5.0.0, which fact is actually declared in *Db*. The relation of these dates follows:

Stela I <i>A1-B5</i> , <i>A8</i>	9.12.3.14.0	5 Ahau 8 Uo
Altar <i>Ba-ca</i>	1. 4.0	
<i>cb</i> , <i>Da</i>	9.12.5. 0.0	3 Ahau 3 Xul
<i>Db</i>	End of a hotun	

The next glyph-block, *E*, presents a Calendar Round date 8 Ahau 8 Uo, all being perfectly regular except the month-coefficient. This is presented in an oval, the right half of which has disappeared,  but since one bar and the left dot still show very clearly, this coefficient can only have been 6, 7, 8, or 9. But since the day-sign is  surely Ahau, and since Ahau can only have 3, 8, 13, or 18 as its corresponding month-coefficients, the month-coefficient here recorded must have been 8.

¹This altar has probably been shifted somewhat from its original position. When examined, the first glyph in plate 22, *c*, designated hereafter *Aa* was the first in the northwest quadrant. This same glyph appears at the extreme left in Maudslay's photograph of this altar (1889-1902, vol. 1, plate 62, *b*).

The nearest occurrence of 8 Ahau 8 Uo to any of the dates either on Stela I or its altar was 9.13.0.0.0 8 Ahau 8 Uo, which is probably the value intended here, although why this katun should have been recorded is difficult to say. Possibly it was desired to show the ending-date of the current katun; at all events, that date is recorded. The coefficient of the month-sign in ϵb is exactly like that of the kin-sign on the north side of this stela, $c6a$, which is not only 8, but is also presented in the same kind of a cartouche.

The next glyph, ϵa , is partially effaced; it may have been the head-variant numeral 13, since ϵb may possibly be the katun-sign. If so, it declares the particular katun coming to an end on the Calendar Round date in the preceding glyph-block.

The first two glyph-blocks of the next quadrant, G and H, appear to be non-calendrical, ga l. h. and hb are the signs for God C. Following this in ib is a kin-sign with its coefficient effaced. The best value of the latter would seem to be between 6 and 10 inclusive, *i. e.*, more than one bar and less than two bars and one dot.

The first glyph-block of the last quadrant, J, is very clearly a Calendar Round date, ? Chuen ? Pop, both the coefficients most unfortunately having been destroyed. All the twenty-one possible occurrences of the day-sign Chuen in the month Pop within the extremes of the dates recorded on this stela and its altar, *i. e.*, 9.11.19.5.0 and 9.13.0.0.0, are given below:

9.11.19.12.11	5	Chuen	19	Pop
9.12. 0.12.11	1	"	14	"
9.12. 1.12.11	10	"	9	"
9.12. 2.12.11	6	"	4	"
9.12. 3.13.11	9	"	19	"
9.12. 4.13.11	5	"	14	"
9.12. 5.13.11	1	"	9	"
9.12. 6.13.11	10	"	4	"
A. 9.12. 7.14.11	13	"	19	"
9.12. 8.14.11	9	"	14	"
9.12. 9.14.11	5	"	9	"
9.12.10.14.11	1	"	4	"
9.12.11.15.11	4	"	19	"
B. 9.12.12.15.11	13	"	14	"
9.12.13.15.11	9	"	9	"
9.12.14.15.11	5	"	4	"
9.12.15.16.11	8	"	19	"
9.12.16.16.11	4	"	14	"
C. 9.12.17.16.11	13	"	9	"
9.12.18.16.11	9	"	4	"
D. 9.12.19.17.11	12	"	19	"

It seems highly probable therefore, without, however, being certain, that one of the above dates was recorded in J.

Returning to our text once more, it will be seen that the day-sign coefficient in ja can only be either 11, 12, or 13, since it is surely composed of two bars and one, two, or three dots,¹ which eliminates at once all but A, B, C, and D of the above possibilities; and of these, the last, D, is by far the more likely date to have been recorded here.

¹ The day-sign coefficients only run from 1 to 13 inclusive.

To begin with, it is only 9 days earlier than the katun-ending recorded in E; and furthermore, precisely this very number of kins may be recorded in the glyph immediately preceding this Calendar Round date, *i. e.*, in 1*b*; at least, a kin-sign is recorded there, and the best values for its effaced coefficient are between 6 and 10 inclusive. The fact that we probably have in 1*b* a distance-number composed of 9 kins, which, if counted forward from 9.12.19.17.11 12 Chuen 19 Pop will reach 9.13.0.0.0 8 Ahau 8 Uo, the date in E*b*, makes the last reading above by far the best. The next glyph, κ, although partially effaced, appears to have been an ending-sign; at least its main element is the hand. The last glyph-block, L, is undecipherable.

If the above reading of the Calendar Round date in J is correct, there exists an interesting relationship between this date and the Initial Series on the West Altar of Stela 5, namely, the former is exactly 5 katuns, a quarter of a cycle later than the latter, viz:

Initial Series of West Altar of Stela 5	9. 7.19.17.11	9 Chuen 14 Mol
	5. 0. 0. 0	
Altar of Stela 1	9.12.19.17.11	12 Chuen 19 Pop

The relationship is so unique that it may possibly be ascribed to chance, but as different katun anniversaries of dates other than those ending tuns, hotuns, lahuntuns, or katuns of the Long Count are known to have been recorded elsewhere,¹ it is not improbable that this relationship may be due to intention rather than to chance.

Stela I	c1	9.11.19. 5. 0	10 Ahau 13 Ceh
	c6	10. 8	
Altar	c7 <i>a</i>	9.11.19.15. 8	10 Lamat (16 Zotz)
		(3.16.12)	undeclared
	A1-B5, A8	9.12. 3.14. 0	5 Ahau (8 Uo) (Initial Series)
	B <i>Ca</i>	1. 4. 0	
	C <i>b</i> , D <i>a</i>	9.12. 5. 0. 0	3 Ahau 3 Xul
	D <i>b</i>		End of a hotun
		(14.17.11)	undeclared
	J	9.12.19.17.11	12 Chuen 19 Pop (?)
	1 <i>b</i>	9	(?)
	E	9.13. 0. 0. 0	8 Ahau 8 Uo
	F		End of Katun 13?

A study of the foregoing develops a possible reason for the record of 9.13.0.0.0 8 Ahau 8 Uo on this altar. It will be noted that the month part of the Initial Series terminal date is also 8 Uo; therefore there is an exact number of years of 365 days each between these two dates, sixteen of them, if the value of 8 Ahau 8 Uo was 9.13.0.0.0, as suggested here. The fact that sixteen years of 365 days each exactly separated the Initial Series terminal date of the stela from the end of the current katun may have been regarded of sufficient importance in itself to warrant its record here; and particularly so, since $16 \times 365 = 2 \times 2,920$, the latter period, 2,920 days, being equal to

¹ A case in point is the record of the dates 9.16.12.5.17 6 Caban 10 Mol and 9.17.12.5.17 4 Caban 10 Zip on Altar T here at Copan, the latter being the first katun anniversary of the former. Another example at Quirigua is the record of 9.16.13.4.17 8 Caban 5 Yaxkin on the east side of Stela D, which is the second katun anniversary of 9.14.13.4.17 12 Caban 5 Kayab, the Initial Series of Stelæ E and F at the same site.

five Venus years of 584 days each, which is so minutely set forth in pages 24, 45-50 of the Dresden Codex, and which seems to have been a period of very great importance among the ancient Maya.¹

Another interesting point in connection with the Initial Series of Stela I is the fact that it is just 8 tuns later than the Initial Series of Stela 1, viz:

9.11.15.14.0	11 Ahau 8 Zotz
8. 0.0	
9.12. 3.14.0	5 Ahau 8 Uo

As the former date was 14.0 later than the hotun-ending Stela 1 was erected to commemorate, it seems probable that this was an important anniversary, possibly of some feast celebrated at the conclusion of every Uinal 14 in each succeeding tun. At least its eighth recurrence after 9.11.15.14.0 appears as the Initial Series date of Stela I.

Still another interesting point in connection with this monument is the apparent record of a tonalamatl or Sacred Year of 260 days, the earliest date on the stela, 9.11.19.5.0, being exactly that number of days before the end of Katun 12, viz:

9.11.19. 5.0	10 Ahau 13 Ceh
13.0	(260 days)
9.12. 0. 0.0	10 Ahau 8 Yaxkin

Moreover, the next date on Stela I is four-fifths of a tonalamatl later, *i. e.*, 9.11.19.15.8 10 Lamat 16 Zotz, the day Lamat also being important in the Venus year.

Tonalamatls divided into five parts of 52 days each are frequently represented in the manuscripts, but tonalamatls of any sort are exceedingly rare in the inscriptions, hence the importance of finding one apparently recorded here.

Stela I and its altar are the most important hotun-marker yet described because of the diversity of points upon which they shed light. These have been discussed in the preceding pages, but because of their importance, particularly that of the first three, they are repeated below:

1. This stela and altar determine that the Great Plaza was not laid out until after 9.12.5.0.0.
2. This stela and altar establish in a clear and decisive manner that inscriptions on stelæ may be and sometimes are concluded on the altars with which they are associated.²
3. This stela presents at least one calculation having to do with the tonalamatl or Sacred Year of 260 days found usually only in the codices, and another having to do with a Solar Year of 365 days.
4. This stela appears to have some relation with Stela 1, its Initial Series declaring a date just 8 tuns later than the Initial Series on that monument.

¹ Morley, 1915, pp. 276-278.

² This is chiefly important in indicating the probable nature of the relationship between Stela E and its altar, Stela 19 and its altar, and possibly between Stela 1 and the East Altar of Stela 5, and in tending to show that the present altar of Stela 1 and the West Altar of Stela 5 were possibly formerly correlated in this same way with some other stela now lost or destroyed.

5. This stela appears to have some relation with the West Altar of Stela 5, declaring a date just 5 katuns or a quarter of a cycle later than the Initial Series of that monument.
6. This stela and altar between the Initial Series date on the former and the end of the current katun on the latter cover a period of 5,840 days, or exactly two of the very important Venus-solar periods of 2,920 days each, *i. e.*, 10 Venus years or 16 solar years.

STELA 6.

Provenance:	Several hundred meters northwest of Stela 5 at Group 8. (See plate 3.)
Date:	9.12.10.0.0 9 Ahau 18 Zotz. ¹
Text, (a) photograph:	Gordon, 1896, plate 7. Maudslay, 1889-1902, vol. I, plates 105 and 106. Spinden, 1913, plates 18, 4 and 20, 6.
(b) drawing:	Maudslay, 1889-1902, vol. I, plate 107. figure 33 (altar only).
References:	Bowditch, 1910, p. 101 and table 29. Gordon, 1896, pp. 35, 37, 38. Maudslay, 1889-1902, vol. I of text, p. 67. Spinden, 1913, p. 159 and table 1.

Stela 6 was found lying on the ground in the bush to the north of the road leading from the village to the Main Structure, several hundred meters northwest of Stela 5, at Group 8. One of the Peabody Museum expeditions raised this monument to its former position; but it has since fallen again, and now lies prostrate and broken into two pieces.

It is 2.9 meters long, 58 cm. wide, and 56 cm. thick. The front is sculptured with a human figure and the back and sides with glyphs, on the basis of which arrangement it is to be assigned to Class 4. The Initial Series introducing glyph appears in A1-B2, and the Initial Series number in A3-B4 and B6b. The date recorded is 9.12.10.0.0 9 Ahau 18 Zotz, as follows:

A1-B2	Initial Series introducing glyph
A3	9 cycles
B3	12 katuns
A4 u.h.	10 tuns
A4 l.h.	0 uinals
B4a	0 kins
B4b	9 Ahau
B6b	18 Zotz

All the above coefficients are bar-and-dot numerals, with the exception of the kin coefficient, which is a head-variant, and all the values are perfectly clear as given.

As Stela 6 records a lahuntun-ending in the Long Count, the lahuntun glyph should be found somewhere in the text. Let us therefore continue our examination. The next glyph after the month of the Initial Series terminal date, A7a, is a well-known ending-sign of which the hand is the most conspicuous element, and following this in A7b is the glyph sought for, namely, the lahuntun-sign. The regularity with which this glyph occurs in

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

inscriptions dating from lahuntun-endings, and its record in no other kind of texts, sufficiently establishes its identity and meaning as given here.¹

Following this in B7a is the day 8 Ahau, which, the writer believes, was recorded here because it was the day on which the current *katun* ended, namely, 9.13.0.0.0 8 Ahau 8 Uo. This same practice seems to have obtained elsewhere in the Maya area, notably at Quirigua and Palenque, and, as the writer has noted elsewhere, it may possibly be a forerunner of the *u kahlay katunob* or series of the katuns, which was the method of counting time and recording events used by the Maya at a much later period, *i. e.*, in the New Empire in Yucatan.² Other glyphs of familiar form but unknown meaning appear throughout this text; D4a u. h. is 3 katuns and B8b l. h. the month-sign Kankin. There are $13+9+9=31$ glyph-blocks in all, the Initial Series introducing glyph occupying the space of 4 glyph-blocks. Stela 6 marked the next hotun in the Long Count after Stela I and its altar.

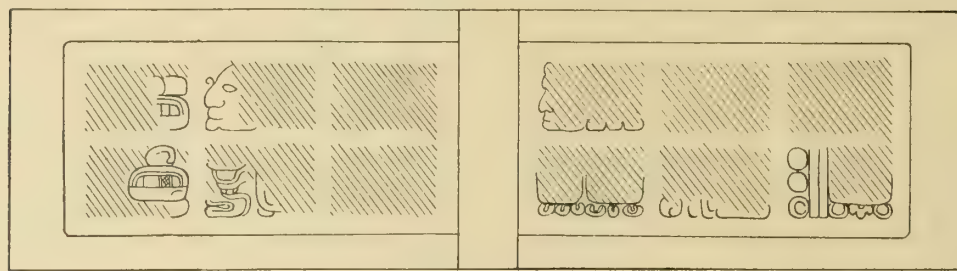


FIG. 33.—Inscription on side of altar of Stela 6.

There is a rectangular altar associated with this stela, which still shows traces of glyphs on its sides. (See figure 33.) It is 1.6 meters long, 43 cm. high, and 70 cm. wide. The long sides have three vertical bands, one at each end and one in the middle, dividing each long side into two panels, each having 6 glyph-blocks or 12 to a side. One end is destroyed. The other has 6 glyph-blocks. If the destroyed end was similarly treated, there were 36 glyph-blocks on this altar originally. The top is plain and there are no bands on the preserved end.

Unfortunately erosion and defacement have advanced so far that it is impossible to decipher the date, although A1 is clearly the Initial Series introducing glyph, followed by the cycle coefficient in B1a. This is a head-variant, probably 9, although the details of the head are effaced. The cycle-sign, B1b, and the katun coefficient, A2a, are destroyed. The katun-sign shows quite clearly in A2b. The tun coefficient and part of the tun-sign are preserved in B2. The coefficient is again a head-variant numeral of unknown form, though it may be 13. The uinals and kins were recorded at c1 and c2 respectively and are entirely effaced. The day of the Initial Series terminal date is at D1. Faint traces of the bottom of the day-sign cartouche and the head-variant coefficient are all that are left of it.

¹ See Morley, 1917b, p. 197 and plate 2, for a discussion of this glyph.

² See Morley, 1915, pp. 79-85, and Appendix II.







The month of the Initial Series terminal date appears to be the last glyph on this side, F2. The coefficient is either 8 or 13, the month-sign itself being all gone but the lower part. The unknown elements in this date are too numerous to permit decipherment, though much could have been attempted had only the month-sign been preserved. There are no other decipherable glyphs on the remaining sides of this altar.

The stone collar which formerly supported Stela 6 also seems to have been sculptured, but the design is too effaced to distinguish any details.

ALTAR K.

Provenance:	At the western side of the Middle Court near the northern end of Mound 6 at the Main Structure. (See plate 6.)
Date:	9.12.16.7.8 3 Lamat 16 Yax.
Text, (a) photograph:	Spinden, 1913, plate 20, 2.
(b) drawing:	Maudslay, 1889-1902, vol. 1, plate 73, A.
References:	Bowditch, 1910, p. 119 and table 31. Goodman, 1897, p. 132. Gordon, 1896, insert opposite plate 1. Maudslay, 1889-1902, vol. 1 of text, p. 54. Spinden, 1913, pp. 162, 163 and table 1. Thomas, 1900, pp. 785, 802.

Altar K was found at the western side of the Middle Court, near the northern end of Mound 6. It is a small rectangular block of stone 81 cm. wide, 70 cm. broad, and 33 cm. high. The top is plain, the four sides are inscribed with glyphs.

The Initial Series is recorded on what is now the west side, but there is considerable doubt as to whether this altar is *in situ*. The Initial Series introducing glyph is in A1. The variable element is the sign for the planet Venus  and is the earliest occurrence of this glyph as such, so far as the writer knows, in the Copan texts. Cycle 9 is recorded in B1. The katun coefficient, A2a, is partially effaced. Enough remains, however, to show that it was *above* 10 and *under* 15; two bars show distinctly, and the upper dot, which is numerical.  This reduces the katun coefficient to three possibilities, 12, 13, or 14. The tun coefficient, B2a, is 16. The uinal coefficient, C1a, is 7, although  it looks more like 10 at first sight. Maudslay shows it as almost effaced, but it is clearly above 5 and below 11. A close examination of the original established the presence of two numerical dots with a plain intervening space  and one bar. The kin coefficient, D1a, is clearly 8 and the day coefficient,  C2a, clearly 3. The day-sign itself, C2b, is unfamiliar, but since the kin  coefficient is surely 8, it can only be Lamat.

The last glyph of the Supplementary Series, Glyph A, appears in F2 (south side), and this is followed by the month-sign in G2. The month-sign coefficient is clearly 16,¹ and the month-sign itself either Chen, Yax, Zac, or

¹ Maudslay (1889-1902, vol. 1, pl. 73, A, glyph 14) shows a coefficient of above 15. The original is sufficiently preserved here to show that it is 16.

Ceh, the best reading being Yax. Tabulating the foregoing values, we will have:

A1	Initial Series introducing glyph
B1	9 cycles
A2	12, 13, or 14 katuns
B2	16 tuns
C1	7 uinals
D1	8 kins
C2	3 Lamat
G2	16 Chen, Yax, Zac, or Ceh

Using the three values of the katun-coefficient possible, we will obtain the following readings:

9.12.16.7.8	3 Lamat 16 Yax
9.13.16.7.8	1 Lamat 16 Tzec
9.14.16.7.8	12 Lamat 1 Uayeb

As the day-coefficient is surely 3, the month-coefficient surely 16, and the month-sign probably Yax, the first is not only the best but also the only reading possible here, and we may safely accept 9.12.16.7.8 3 Lamat 16 Yax as the date of this altar.

That Altar K was formerly associated with a stela seems doubtful, since no hotun-ending is recorded upon it. It should be noted that the day of the Initial Series terminal date is Lamat, one of the five days on which the Venus year could end, and the Venus-sign itself actually appears as the variable element in the Initial Series introducing glyph. As already noted in connection with a Calendar Round date on Stela 23 (see p. 150), and elsewhere here at Copan, the sign for Venus is sometimes used as a substitute for the day Lamat, perhaps indicating some sort of a relation between this day and this planet. Examples of this use will be pointed out as they occur.

Few of the remaining glyphs are familiar. Q2a and R2a (north side) each record 4 katuns, though the connection between these and the rest of the text is unknown. There are $8 + 10 + 8 + 10 = 36$ glyph-blocks in the text.

ALTAR H'.

Provenance:	Original position uncertain. Now at the southern end of the Western Court, at the northeastern corner of Mound 14 of the Acropolis, Main Structure. (See plate 6.)
Date:	9.13.0.0.0 8 Ahau 8 Uo. ¹
Text, drawing:	plate 23, a, b, c.
References:	Galindo, 1834, Appendix XI, p. 597. Gordon, 1896, p. 15. Maudslay, 1889-1902, vol. 1 of text, p. 24.

Altar H' is 2.26 meters long, 1.40 meters wide, and 36 cm. thick. It now lies in the Western Court of the Main Structure at the northeastern corner of Mound 14. It is broken into four pieces, three small and one

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

large. The southeastern corner, as the altar now stands, is missing. Altar H' is in every way the companion piece of Altar I', which stands at the northwestern corner of this same mound, and, as will appear later, the two are not only practically identical in size, shape, and treatment, but are also connected by the subject-matter of their respective inscriptions.

Galindo was the first to describe both Altars H' and I', as follows:

"Near to the corner of this pyramid of sacrifice [Mound 16] there is found a rectangular table or stone [Altar H'], elevated above the ground like that already described [Altar Q] by smaller stone supports; it is 2 varas 21 inches long, and 1 vara 20 inches wide, and 13 inches thick or high; three sides of its edge contain characters, which are in squares (*casillas*) four to a block; figure 17 represents one of these rectangular groups; the edges of the stone thus contain 24 squares on the long side, and 16 on the smaller sides; the other long side, which faces south, and the top and bottom are plain. At the other side of the canoe¹ there is a stone, or table, similar to the last described, but very broken [Altar I']."²

Maudslay, in describing these two altars, says:

"*i* and *j* are two flat stone slabs, each about the same size, 7 feet 6 inches \times 4 feet 6 inches \times 1 foot; both are broken, one has indistinct remains of hieroglyphic carving on the narrow sides and ends. Excavations have been made beneath each of these slabs at some former time."³

Fortunately, in spite of this indistinctness, the writer was able to decipher the calculations recorded. It should be noted that both of these altars have inscriptions, and not one only, as stated by Maudslay.

The inscription is presented on the ends and one of the sides; the remaining side, top, and bottom are plain. There is no decoration of any sort other than the single band of glyphs just mentioned, and as one of the long sides is plain, we may assume that this was the back. If so, the inscription on Altar H' began on the left or east side with the Initial Series introducing glyph, the left half of which is missing. (See A, plate 23, *a*.)

The Initial Series of this altar is expressed by head-variant period-glyphs and numerals, the order of reading within the glyph-blocks being from left to right and top to bottom. The coefficients unfortunately are not only indistinct in some places, but of unusual form. Thus, although the cycle and uinal coefficients are readily identifiable as 9 and 3 respectively, the katun, tun, and kin coefficients are irregular. A better way, therefore, to decipher this date is to continue the inspection of the text before attempting to assign values to these doubtful numerals.

The day of the Initial Series terminal date appears in *da* l. h., and is either 6, 7, 8, 9, or 10 Muluc. Following along through *e* and *f* (plate 23, *b*) the last glyph of the Supplementary Series is reached in *ga* u. h.; and in *gb* u. h. is the month of the Initial Series terminal date, 17 Mol.

The first Secondary Series, 2.13.4.4, is recorded at *jb* l. h., *ka*; and at *kb* u. h. there is a non-calendric glyph, very irregularly standing between the

¹ Galindo thus fancifully describes one of the sculptures at the northern base of mound 14.

² Galindo, 1834, Appendix XI, p. 597.

³ Maudslay, 1889-1902, vol. 1 of text p. 24.

tun and katun signs. Following this in *L u. h.* is a Calendar Round date, 6 Chicchan 18 Kayab. Now, the only way this date can be connected with 17 Mol, by this number, is to count 2.13.4.4 forward from 6 Chicchan 18 Kayab, in which case the terminal date reached will be found to be 8 Muluc 17 Mol; and we may therefore fill in the doubtful day-sign coefficient in *da l. h.* as 8. But now that we have the complete Initial Series terminal date, we can find from Goodman's tables at what places in Cycle 9 it could have occurred, remembering, however, that the uinal coefficient must be 3. (See *ca l. h.*) These will be found to be seven in number, as follows:

(1) 9. 1.17. 5.9	8 Muluc 17 Mol
(2) 9. 4.10. 0.9	" "
(3) 9. 7. 2.13.9	" "
(4) 9. 9.15. 8.9	" "
(5) 9.12. 8. 3.9	" "
(6) 9.15. 0.16.9	" "
(7) 9.17.13.11.9	" "

As the fifth, 9.12.8.3.9, is the only one having a uinal coefficient of 3, it may be accepted as the Initial Series recorded on this altar. This reading, moreover, as will appear later, is confirmed by additional evidence in the text.

Let us next ascertain how these values for the katun, tun, and kin coefficients agree with those actually recorded. The katun coefficient in *Ba l. h.* is very dissimilar to any of the known forms for 12, and we must pass it over as an unusual variant. The tun coefficient, *ca u. h.*, is partially effaced, but from what little is left, the frontlet ornament, characteristic of the head for 8, *i. e.*, being composed of one part, appears to be distinguishable. The kin coefficient, *da u. h.*, is probably 9, traces of the dots still appearing on the lower part of the cheek. Thus, with the exception of the katun coefficient, all the values recorded agree with those obtained in the above calculation. But now that we know the corresponding Initial Series value of the terminal date, the Initial Series value of 6 Chicchan 18 Kayab may be calculated therefrom as follows:

9.12. 8. 3.9	8 Muluc 17 Mol
2.13. 4.4	
9. 9.14.17.5	6 Chicchan 18 Kayab

Returning to our text again, there follows in *Lb l. h.* and *ma u. h.* another Secondary Series, 1.14.11; and in *ma l. h.* the lahuntun-sign. Finally, in *mb l. h.*, *Na u. h.* is the Calendar Round date 9 Ahau 18 Zotz, which *ma l. h.* declares stood at the end of a lahuntun in the Long Count. By referring to Goodman's tables, it will be found that 9 Ahau 18 Zotz can occur as a lahuntun-ending only once for more than 18,000 years either before or after 9.12.8.3.9, namely, at 9.12.10.0.0 9 Ahau 18 Zotz, which therefore is doubtless the value intended here.

Every attempt to connect 9.9.14.17.5 6 Chicchan 18 Kayab with 9.12.10.0.0 9 Ahau 18 Zotz, however, either by counting 1.14.11 backward or forward from either date to the other, will prove unsuccessful, but if this

number is counted forward from the Initial Series terminal date, the lahuntun-ending recorded will be reached, which further authenticates the Initial Series as deciphered above, viz:

9.12. 8. 3. 9 8 Muluc 17 Mol
 1.14.11
 9.12.10. 0. 0 9 Ahau 18 Zotz

The last three glyphs of the text, *Nb* u. h. to *Nb* l. h., are undecipherable. A complete summary of the foregoing calculations follows:

A-Da l. h., Gb u. h.	9.12. 8. 3. 9	8 Muluc 17 Mol
j b l. h., ka u. h., ka l. h.	2.13. 4. 4	backward
L u. h.	9. 9.14.17. 5	6 Chicchan 18 Kayab
L b l. h., Ma u. h.	1.14.11	forward from Initial Series
M b l. h., Na u. h.	9.12.10. 0. 0	9 Ahau 18 Zotz
ma l. h.		End of a lahuntun

It may be noted in passing that the second date above, 9.9.14.17.5 6 Chicchan 18 Kayab, is exactly 78 years of 365 days each earlier than the best reading of the Initial Series of Stela 5, namely, 9.13.14.0.15 6 Men 18 Kayab. (See p. 207.)

There are 4 glyph-blocks on each end and 6 on the front, making 14 for the entire inscription. These contain about 48 individual characters, and as 17 have been completely deciphered and the significance of 8 more at least partially understood, and finally, since this is an average text, we may claim with some reasonableness that the meanings of from one-third to one-half of the Maya glyphs have been determined.

As will appear in connection with Altar I', the sister monument of Altar H', the inscriptions on the two are continuous and can not be treated separately; therefore the question as to what was the contemporaneous date of Altar H' will be taken up under Altar I'.

ALTAR I'.

Provenance:	Original position uncertain. Now at the southern end of the Western Court, at the northwestern corner of Mound 14 of the Acropolis, Main Structure. (See plate 6.)
Date:	9.13.0.0.0 8 Ahau 8 Uo. ¹
Text, drawing:	plate 23, <i>d</i> , <i>e</i> , <i>f</i> .
References:	Galindo, 1834, Appendix XI, p. 597. Gordon, 1896, p. 15. Maudslay, 1889-1902, vol. 1 of text, p. 24.

Altar I', the sister monument of Altar H', is 2.48 meters long, 1.45 meters wide, and 38 cm. thick. It now lies at the northwestern corner of Mound 14 at the Main Structure, broken into 5 pieces, one of which, the northeastern corner, is missing, and was also when Galindo first described this altar in 1834.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

The inscription, as in the case of Altar H', is presented upon the ends and front, the back, top, and bottom being plain. As this monument is 20 cm. longer than Altar H', it has one more glyph-block on the front than the latter, making 15, *i. e.*, 4+7+4, for the entire inscription.

This text presents a very unusual feature, found only on two other monuments in the Maya area—Stela 4, also here at Copan, and Stela 10, at Tikal—namely, the record of its Initial Series introducing glyph in a position other than at the beginning of the inscription, *i. e.*, here in the second position. (See B, plate 23, *d.*) Fortunately, in the present case there exists an excellent reason to account for this highly irregular procedure, but in the case of the other Copan example, Stela 4, as will appear later, the inversion is inexplicable. (See p. 356.)

The first glyph-block, A (plate 23, *d.*), presents a Secondary Series composed of ?14.11, the tun coefficient being surely above 10 and below 16. But since there is no date from which this may be counted, let us proceed with the examination of our text. B is an Initial Series introducing glyph, and following this in C to E is an Initial Series number.

The cycle-sign and its coefficient in C u. h. clearly record 9 cycles and the katun-sign and coefficient in C l. h., 13 katuns. This much is certain. Unfortunately, the greater part of the next glyph-block, D, and half of the next, Ea (plate 23, *e.*), are gone, being on the missing fragment, but the kin-sign appears in Eb u. h., and, far more important, the month of the Initial Series terminal date, 8 Uo, in Eb l. h., thus reducing the possible readings for this Initial Series from 7,200 to 20.¹

The writer made a protracted search for this missing piece, not only in the immediate neighborhood of the other four fragments, which were apparently found together, but also throughout the Western Court as well, but with no success. Galindo² describes Altar I' as very broken in 1834; and Maudslay states³ that excavations had been made under both of these altars, at which time they were probably broken and possibly the corner now missing was then carried off. It is a small fragment, only 25 cm. long on one side and 13 cm. on the other, and may have been taken some little distance and left in the bush. It is to be hoped that eventually it will be found. However, even though it never should be recovered, there are sufficient data on the remaining pieces to assign this altar to its proper position in Maya chronology.

It was mentioned above that the record of the month of the Initial Series terminal date in E1b l. h. reduced the possible readings from 7,200 to 20. Now, while it is hardly necessary to repeat all of the latter here, since the first is so obviously the one intended by the ancient sculptors, it has seemed best to do so, since the complete list makes it so clear why the first value is the best choice from the Maya point of view. Referring to

¹ Since the katun-coefficient is surely 13, this fact alone limits the number of possible dates to 7,200; and further, since any month-position, as 8 Uo here, recurred at intervals of every 365 days; and finally, since Katun 13 ended on the month-position 8 Uo, this position only occurred 19 times thereafter between 9.13.0.0.0 and 9.14.0.0.0.

² Galindo, 1834, Appendix XI, p. 597.

³ Maudslay, 1889-1902, vol. 1 of text p. 24.

Goodman's tables, it will be found that days falling on the month-position 8 Uo in Katun 13 occurred in the following places:

9.13. 0.0. 0	8 Ahau	8 Uo
9.13. 1.0. 5	9 Chicchan	"
9.13. 2.0. 10	10 Oc	"
9.13. 3.0. 15	11 Men	"
9.13. 4.1. 0	12 Ahau	"
9.13. 5.1. 5	13 Chicchan	"
9.13. 6.1. 10	1 Oc	"
9.13. 7.1. 15	2 Men	"
9.13. 8.2. 0	3 Ahau	"
9.13. 9.2. 5	4 Chicchan	"
9.13. 10.2. 10	5 Oc	"
9.13. 11.2. 15	6 Men	"
9.13. 12.3. 0	7 Ahau	"
9.13. 13.3. 5	8 Chicchan	"
9.13. 14.3. 10	9 Oc	"
9.13. 15.3. 15	10 Men	"
9.13. 16.4. 0	11 Ahau	"
9.13. 17.4. 5	12 Chicchan	"
9.13. 18.4. 10	13 Oc	"
9.13. 19.4. 15	1 Men	"

To record the ends of the longer time-periods in Maya notation as in our own, the lower periods must be represented as at 0. Thus, for example, to record the ends of tuns, *i. e.*, the 360-day periods, both the uinal and kin coefficients must be 0. To record the ends of hotuns, *i. e.*, the 1,800-day periods, the uinal and kin coefficients must be 0, and the tun-coefficient either 0, 5, 10, or 15. Finally, to record the ends of even katuns, *i. e.*, 7,200-day periods, the tun, uinal, and kin coefficients¹ all must be 0.

A study of the above list shows that the uinal and kin coefficients are both at 0 in one place only, namely, 9.13.0.0.0 8 Ahau 8 Uo, where, moreover, the tun coefficient is also 0. This is the equivalent of stating that the first date above records not only the end of a tun in the Long Count, but also the end of a hotun, and even of a katun. The Maya sought always to record upon their monuments, particularly of the stela type, the ends of periods in their chronological system, and even if there were not additional reasons to be presented later for accepting the first value, the one given above would be sufficient to warrant its acceptance here.

But stronger proof of the accuracy of this reading is contained in the text itself. If the Initial Series of Altar I' is 9.13.0.0.0, it becomes possible to connect this altar with its sister monument, Altar H', by the distance number in A, ? .14.11 and at the same time it develops a plausible explanation for the record of its Initial Series introducing glyph in the second glyph-block instead of in the first.

The Initial Series of Altar H' is 9.12.8.3.9. Let us next count forward from this date, the Secondary Series number in the first glyph-block on Altar I', using all the five values of the tun-coefficient there possible, *i. e.*, 11 to 15 inclusive:

9.12. 8. 3. 9	9.12. 8. 3. 9	9.12. 8. 3. 9	9.12. 8. 3. 9	9.12. 8. 3. 9
11.14.11	12.14.11	13.14.11	14.14.11	15.14.11
9.13. 0. 0. 0	9.13. 1. 0. 0	9.13. 2. 0. 0	9.13. 3. 0. 0	9.13. 4. 0. 0

But we have just seen that the Initial Series following the above Secondary Series number records the date 9.13.0.0.0, precisely the same date as that reached in the first of the above calculations, the one in which the tun coefficient is 11. In other words, 11 is the most likely value of the tun coefficient here, since 11.14.11 exactly connects the Initial Series of the one altar (H') with the Initial Series of the other (I'). Furthermore, if this is so, it is easy to understand why the sculptors permitted the displacement of the Initial Series introducing glyph here. They wished to show by this displacement that if 11.14.11 was counted forward from some earlier date, not recorded on Altar I', the date reached would be the Initial Series immediately following 11.14.11. Hence the displacement of the Initial Series introducing glyph, so that this number, which led to its Initial Series immediately following, *could precede it*.

Although the above readings are based upon certain restorations in the original, the results obtained are of such a nature as to prove practically their own accuracy, and the Secondary Series in A and the Initial Series in B-E may be accepted as deciphered above, viz:

A-Da l. h., G 1a u. h.	Altar H'	9.12. 8. 3. 9 8 Muluc 17 Mol
A	Altar I'	11.14.11
B-E	Altar I'	9.13. 0. 0. 0 8 Ahau 8 Uo

The next count on Altar I' is another Secondary Series in G (plate 23, *e*), consisting of 2.10.16.3.0, which is followed by the date 9 Ahau 13 Cumhu in hb u. h., ha l. h. However, every attempt to connect this latter date with the Initial Series terminal date, either by counting backward or forward, will prove unsuccessful, and we must continue the inspection of our text to find the reason for its record.

Immediately following 9 Ahau 13 Cumhu in 1 u. h. is the date 9 Ahau 18 Zotz, and it will be found that if 2.10.16.3.0 is counted forward from 9 Ahau 13 Cumhu this latter date will be reached. But we have seen that this latter date has the value 9.12.10.0.0 on the sister monument, and therefore, in view of the other close relations between these two inscriptions pointed out above, it seems probable that it will have the same value here; and if this is so, the Initial Series value of 9 Ahau 13 Cumhu can be calculated from it as follows:

9.12.10. 0.0	9 Ahau 18 Zotz
2.10.16. 3.0	
7. 1.13.15.0	9 Ahau 13 Cumhu

This Secondary Series number, *i. e.*, 2.10.16.3.0, equals 1,001.58 solar years (tropical). At first sight it would appear as though this long number, composed of 365,820 days, was meant to represent exactly 1,000 solar years, but such an explanation demands that the Maya had determined the solar year no more closely than as containing 365.82 days, an error of more than one day every two years, which seems very unlikely in view of the accuracy of their other astronomical observations. However, such a long stretch of time, probably purely an abstract conception so far as their actual history

was concerned, since it goes back to Cycle 7, from which no other dates are known, bespeaks a high intellectual development, and indicates that the priesthood, or those who worked out the calculations presented upon the monuments, had reached a plane of mental achievement where they were dealing with periods of time far beyond the finite, so far as their own epoch was concerned.

The Calendar Round date in 1 u. h. concludes the calculations presented on this altar. Of the 15 glyph-blocks containing some 52 individual glyphs, 17 have been completely deciphered, and the significance of 6 others at least partially understood; that is to say, from one-third to one-half of this text has been deciphered.

The inscriptions on these two altars are so closely related that the one on Altar H' has been repeated in the following summary to facilitate study:

Altar H': A-da l. h., ob u. h.	9.12. 8. 3. 9	8 Muluc 17 Mol
jb l. h., ka u. h., ka l. h.	2.13. 4. 4	backward
l u. h.	9. 9.14.17. 5	6 Chicchan 18
		Kayab
lb l. h., ma u. h.	1.14.11	forward from
		Initial Series
mb l. h., na u. h.	9.12.10. 0. 0	9 Ahau 18 Zotz
ma l. h.	End of a lahuntun	
Altar I': ab u. h., aa l. h.	11.14.11	to Initial Series of
		Altar H'
B-E	9.13. 0. 0. 0	8 Ahau 8 Uo
hb u. h., ha l. h.	7. 1.13.15. 0	9 Ahau 13 Cumhu
G	2.10.16. 3. 0	forward
1 u. h.	9.12.10. 0. 0	9 Ahau 18 Zotz

A study of the above summary at once raises the question as to whether both of these altars may not date from the same period. Indeed, the style and treatment of the two monuments is so similar, and the calculations presented upon them are so mutually interdependent, that it is difficult to believe they could have been made at different times, even only 10 years apart.

In this connection two possibilities would appear to present themselves, either both altars date from 9.12.10.0.0, a date found on both (*i. e.*, 9 Ahau 18 Zotz), or else both date from 9.13.0.0.0, the Initial Series terminal date on Altar I', and the latest found on either.

If the former were the date of these altars, it is possible that both may have been originally associated with Stela 6, the date of which is also 9.12.10.0.0. In this event the record of 9.13.0.0.0 on Altar I' is to be interpreted in the same way as the same date on the altar of Stela I, namely, as the record of the current katun-ending, and *not* as the contemporaneous date of the altar.

A better interpretation, however, is to assign both to 9.13.0.0.0, and not to regard either as having been formerly associated with Stela 6. The latter date, moreover, was a katun-ending, a suitable time for the erection of two altars, which as we have already seen, appears to have been done at the

conclusion of the preceding katun 9.12.0.0.0, on which latter date the altar of Stela 1 and the West Altar of Stela 5 were erected.

Whether a stela was ever associated with Altars H' and I' is unknown. Perhaps, as already suggested for the altar of Stela 1 and the West Altar of Stela 5, the fact that two altars were erected instead of one may have served in place of a stela. At least, in view of the similarity between the two cases, it seems not unlikely that the end of Katun 12 was commemorated by the erection of two round altars—the altar of Stela 1 and the West Altar of Stela 5—and that the end of the succeeding katun, Katun 13, was commemorated by the erection of two rectangular altars—Altars H' and I'. But whether or not stelæ ever accompanied these two pairs of altars is uncertain. The writer is inclined to believe that they did not.

Whichever date be accepted for Altars H' and I', either 9.12.10.0.0, or, as the writer believes, 9.13.0.0.0, it is obvious that neither monument can be *in situ* in the Western Court, strictly speaking, since this part of the Acropolis probably did not take final form until 9.17.0.0.0, when the reviewing-stand at the opposite (*i. e.*, northern) end was dedicated. (See plate 6.) It is probable, therefore, that Altars H' and I' were removed thither from some earlier location, perhaps at the same time Stela P was re-erected here.

STELA J.

- | | |
|-----------------------|---|
| Provenance: | At the southeast corner of Mound 3, at the edge of the Great Plaza, Main Structure. (See plate 6.) |
| Date: | 9.13.10.0.0 7 Ahau 3 Cumhu. ¹ |
| Text, (a) photograph: | Maudslay, 1889-1902, vol. 1, plates 66, 67, figure 34. |
| (b) drawing: | Förstemann, 1904a, figure on p. 362.
Morley, 1915, plate 15.
Maudslay, 1889-1902, vol. 1, plates 68 to 72.
Thomas, 1900, plates 43, <i>a</i> and 43, <i>b</i> . |
| References: | Bowditch, 1910, pp. 117, 118, 136, 243, 247 and tables 29 and 31.
Förstemann, 1904a, pp. 361-363.
Goodman, 1897, p. 131.
Gordon, 1896, pp. 24, 34, 35.
Maudslay, 1889-1902, vol. 1 of text, pp. 53, 54.
Morley, 1915, pp. 191, 192.
Spinden, 1913, p. 159 and table 1.
Thomas, 1900, pp. 779-785, 802. |

Stela J stands *in situ* at the southeastern corner of Mound 3, one of the structures rising from the terrace on the eastern side of the Great Plaza. It is 2.69 meters high above ground and 1 meter wide at the widest part.

This monument, apparently discovered and first described by Maudslay,² is one of the most remarkable in the entire Maya area, and, with the single exception of Stela H at Quirigua, differs from all others in the presentation of its inscription. All four faces are inscribed with glyphs, the peculiar arrangement of which, as well as the unusualness of the subject-matter, constitutes the monument's chief claim to distinction. On this basis it may

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² Maudslay, 1889-1902, vol. 1 of text, pp. 53, 54.

be referred to Class 3, although this classification is admittedly unsatisfactory because of the peculiarity of the glyph sequence.

The inscription on the front or west face is presented as a scheme of interlacing bands crossing each other at right angles in such a way as to outline a grotesque face.

The inscription on the back or east face is also presented as a scheme of interlacing bands, but on this side the bands cross each other diagonally, giving the effect of a woven mat pattern. Maudslay carefully worked out the glyph sequences on both the front and back of this monument, and his scheme of numeration is used in the following discussion.¹

The inscriptions on the two narrow faces are perfectly regular in their presentation, each being composed of two parallel columns of glyph-blocks.² The inscription on the front opens with the day 1, 2, or 3 Ahau. The middle dot may be different from the other two, but not enough so as to give preference to 1 or 2 over 3. After this glyph, the order of reading is extremely doubtful. Glyph 3 appears to be the remains of another day-sign, but the interior details, as well as the coefficient, are entirely gone. Glyph 14 shows the day-sign Ahau again in connection with a hand "ending-sign," and this is followed by 11, 12, or 13 cycles in Glyph 15. Bowditch deciphers Glyph 15 as 9 cycles: "On Stela J (*w*) of Copan, Glyph 15 (Maudslay's notation) is by the photograph clearly 9 cycles."³

A careful study of the Peabody Museum photographs, however, failed to convince the writer of the correctness of this reading. On the contrary, the cycle coefficient in Glyph 15 appears to be composed of two bars and three dots, *i. e.*, 13. This same number of cycles, moreover, appears a few glyphs farther on.

Glyph 27 is a hand and Glyph 29 a hand "ending-sign" and the day-sign Ahau again. Finally, Glyph 30 is an "ending-sign" and 13 cycles again. It is not clear whether Glyphs 27, 28, 29, and 30 follow Glyph 15 or not. This part of the text is quite unintelligible and the sequence is uncertain. Glyph 31 is 7 Ahau, Glyph 32 a hand, and Glyph 33, 3 Cumhu, and the right half of Glyph 34 possibly a variant of the lahuntun-sign. The rest of the glyphs below this band are either effaced or of unknown meaning. This date, 7 Ahau 3 Cumhu, as will appear later, is the terminal date of the Initial Series on the west side and is, moreover, a lahuntun-ending as well.

In Glyphs 24, 23, 16, and 17, which appear to follow each other in this sequence, or the reverse, 17, 16, 23, and 24, there seems to be recorded a Period Ending date as follows:

Glyph 24	11, 12, 13 or 14 katuns
Glyph 23	11, 12, 13 or 14 tuns
Glyph 17	o uinals
Glyph 16	o kins

¹ See Maudslay, 1889-1902, vol. 1, pls. 68 and 71.

² The usual method of glyph designation, *i. e.*, by letters and numbers, has been followed on these two faces.

³ Bowditch, 1910, p. 117.

Taking these up in turn, the last two values of the katun coefficient 13 and 14 can probably be eliminated as indicating dates later than the lahuntun-ending, which Stela J was erected to commemorate, namely, 9.13.10.0.0. This leaves a choice of 11 or 12. Maudslay's drawing shows 12,¹ and both Goodman² and Bowditch³ accept this reading.

The tun coefficient (Glyph 23) is even more uncertain. Two bars show very clearly and there is room for one more bar or a row of dots. The writer thought he was able to trace the outline of the upper dot on the original, which would give four possible values, 11, 12, 13, or 14. The uinal and kin coefficients (Glyphs 16 and 17, respectively) are very clearly 0.

Bowditch reads Glyph 15 with these four glyphs as the following Initial Series 9.12.12.0.0 1 Ahau 8 Zotz; and although it is quite possible that the day 1 Ahau may be recorded in Glyph 1, this reading is open to three very serious objections. First, at least one glyph (No. 25), if not more, stands between the glyph representing "9 cycles" and the glyph representing "12 katuns." Such an interpolation between the period-glyphs of an Initial Series is a thing absolutely unknown in all Initial Series. The second objection is that Glyph 14 (the sign immediately preceding "9 cycles") is not an Initial Series introducing glyph. Third, the cycle coefficient in Glyph 15 is much better as 13 than 9. The writer, therefore, is unable to agree with this interpretation, and believes indeed that Glyph 15 does not immediately precede the other four.

That Glyphs 24, 23, 16, and 17 record a Period Ending date, however, which may well be the equivalent of this Initial Series date, is quite another matter, and is well within the range of possibility. The first point to be determined in deciphering this number is which, if either, of the two dates on this side of Stela J is the terminal date of this period-ending.

If Glyphs 31, 33, and 34 are to be read with 24, 23, 16, and 17, this period-ending can be none other than "7 Ahau 3 Cumhu end of Tun 10 of Katun 13, end of a lahuntun." This must be true, since 31 and 33 unmistakably record the date "7 Ahau 3 Cumhu" and 34 probably the end of a lahuntun, and this date could only occur as a lahuntun-ending at the end of Tun 10 of Katun 13. A careful inspection of the katun and tun coefficients shows that while the former possibly might have been 13, the latter never could have been 10. This, therefore, eliminates the possibility of Glyphs 31 and 33 being the terminal date of the period-ending in 24, 23, 16, and 17.

The remaining date which may possibly belong to this period-ending is fragmentary, only the day being preserved in Glyph 1. As we have already seen, this is surely 1, 2, or 3 Ahau. By referring to Goodman's tables, it will be found that there is only one possible date in Cycle 9 prior to 9.13.10.0.0 which fulfills all the necessary conditions, namely, 9.12.12.0.0 1 Ahau 8 Zotz. Both Goodman and Bowditch agree upon this interpretation. It therefore

¹ Maudslay, 1889-1902, vol. 1, pl. 68.

² Goodman, 1897, p. 131.

³ Bowditch, 1910, p. 117.

seems probable that Glyphs 1, 24, 23, 16, and 17 declare the Period Ending date "1 Ahau (8 Zotz) end of Tun 12 of Katun 12," the corresponding Initial Series of which is 9.12.12.0.0 1 Ahau 8 Zotz, as given by Bowditch.

Let us turn next to the consideration of the inscription on the north side, the first two glyph-blocks of which, A1, B1, figure 34, as will presently appear, probably declare the date 10.0.0.0.0 7 Ahau 18 Zip, which must have been of a prophetic nature at the time Stela J was erected. The upper half of A1, figure 34, shows two coefficients of 0, attached to two grotesque heads; and although the latter are to some extent effaced, sufficient remains in each case to show that they are the head-variant forms of the uinal and kin-signs respectively.



FIG. 34.—Top glyph-blocks of inscription on north side of Stela J.

The lower left-hand corner of A1 shows a grotesque head characterized by a fleshless lower jaw, *i. e.*, the tun-sign. Maudslay (1889-1902, vol. 1, plate 69, glyph 41) shows its coefficient as 10; and a careful examination of the original established the correctness of this reading.

The lower right-hand corner of A1 is less clear. The head there portrayed is surmounted by the familiar superfix of the katun-sign, and as the head itself resembles other known head variants for the katun, this identification is doubtless correct.

The best reading of the katun coefficient is 6, the elements both above and below the central dot being not only smaller but decorated as well. The whole glyph-block, therefore, records 6.10.0.0.

The next glyph-block, B1, begins with an ending-sign which is followed by a grotesque head, apparently a period-glyph, surmounted by the coefficient 10. The lower half records a Calendar Round date 7 Ahau 13 Zip.

It would seem, therefore, that we have recorded here a distance number of 6.10.0.0, which, if counted forward from some unexpressed date, will reach the date 7 Ahau 13 Zip. Furthermore, the upper half of B1 declares that this latter date was at the end of some period whose coefficient is 10. This looks as though it might be the cycle-sign, having a clasped hand on the lower jaw, but even although the details of the glyph are not sufficient to establish its identity beyond doubt, it can hardly be other than a Tun 10, a Katun 10, or a Cycle 10.

Referring to Goodman's tables, it will be found that no Tun 10 in Cycle 9, nor Katun 10 of Cycle 9, nor Cycle 10 itself, ended on a day 7 Ahau 13 Zip, the nearest to this date being Cycle 10, which ended on the day 7 Ahau 18 Zip—10.0.0.0.0 7 Ahau 18 Zip—a difference of 5 (*i. e.*, 1 bar) in the month coefficient.

If this last is the date intended here, an excellent reason, moreover, exists for the record of 6.10.0.0 in A1, namely, that this number exactly

expresses the time between the contemporaneous date of Stela J, 9.13.10.0.0, and the end of the current cycle, *i. e.*, Cycle 10:

9.13.10.0.0	7 Ahau 3 Cumhu
6.10.0.0	
10. 0. 0.0.0	7 Ahau 18 Zip

The above reading necessitates a correction in the original, namely, the introduction of another bar in the month coefficient in B1b l. h. But as the record stands, it is obviously incorrect, since 7 Ahau 13 Zip can not end any tun in Cycle 9, except Tun 16 of Katun 1, which is far too early on historic grounds, and since the change suggested is the least which can be made, so that the passage will be intelligible, it is probably correct.

A minor point tending to establish its accuracy is the fact that the day of the starting-point (*i. e.*, the terminal date of the Initial Series) and of the terminal date of this Period Ending are the same, namely, 7 Ahau, a not infrequent occurrence in counts of this character. It denotes, of course, an even number of tonalamatls, *i. e.*, multiples of 260, here, 1,800 of them. If correct, the final date, *i. e.*, 10.0.0.0.0, must have been still far ahead in the future when it was recorded in 9.13.10.0.0, and in that sense was "prophetic."

As we proceed, we will find other occurrences of the record of Cycle 10 here at Copan, which can hardly have been other than prophetic also. Thus, for example on Altar S, the contemporaneous date of which is 9.15.0.0.0, the date 10.0.0.0.0 is recorded (see pp. 227-229), and again, on Stela 8, the contemporaneous date of which is 9.17.12.6.2, the same cycle-ending is again recorded (see pp. 342, 343). It is probable, therefore, that the first two glyph-blocks on the north side of Stela J declare the time which had yet to elapse, from the contemporaneous date of the monument to the end of the current cycle, *i. e.*, 10.0.0.0.0 7 Ahau 18 Zip, that is, 6.10.0.0; and furthermore, that in carving this record, the ancient sculptor to whom the task was intrusted made an error of 5 in the month coefficient, omitting one bar in B1b l. h.

Förstemann's reading of A1, B1 seems very far astray:

"Group *a* consists of four signs $\begin{smallmatrix} 1, 2, \\ 3, 4. \end{smallmatrix}$. Of these, No. 1, as far as it can be recognized, appears to be a general introductory sign of a time count, with which the inscriptions usually begin. No. 2 is totally destroyed. The third sign I may read 'the tenth day of the uinal Zoz [Zotz].' Finally, the fourth is: VIII 4.¹ I admit that the reading Manik is uncertain, but I believe my interpretation of Group *b* will justify it.

"If that is correct, we have here the date: VIII 4; 10, 4² (5 Cauac), which according to my point of view falls in the year 1496, the beginning year of 2 Ahau, and to which the number of days 1,426,507 would belong. Compare my article on 'The Tenth Cycle of the Mayas' (Globus, vol. 82, No. 9).

"We come now to Group *b*, which also contains four signs. While Group *a* actually contains the beginning date of the inscription, Group *b* according to my

¹ This is the day 8 Manik in Förstemann's system of notation.

² This is the date 8 Manik 10 Zotz in Förstemann's notation.

point of view shows an earlier unexpressed event 17 days before. Sign 1 is here a grasping hand and I see therein a sign of subtraction. No. 2 is 10, under which is the date 0 Zoz, which means as we first learned from Dresden 48 and 50, the eve of 1 Zoz also 20 Zip. No. 3 is the figure 7, under which I believe I see kin = day. And $10+7=17$ days before 10 Zoz is in fact 13 Zip, which actually is given in the fourth place."¹

If the writer gathers Förstemann's meaning correctly, he believed A1a u. h. was the Initial Series introducing glyph, an identification not supported by the original. His reading of A1a l. h. as 10 Zotz is equally impossible. The grotesque head there portrayed can not be a sign for Zotz, even though its coefficient is 10; and his reading of A1b l. h. as 8 Manik, according to his own admission, depends upon the correctness of his reading of B1.

He reads B1a u. h. as a subtraction sign, whereas throughout the Maya inscriptions this glyph always means "ending," and in Period Ending dates is never used in any other way.

The grotesque head of B1b u. h. he identifies as 0 Zotz, and its coefficient as 10 kins. The "subtraction sign" in the preceding glyph he interprets as indicating that these 10 kins are to be subtracted from 10 Zotz in A1a l. h. to give the 0 Zotz in B1b u. h. B1a l. h., according to his view, is 7 kins, which are to be counted backward from 0 Zotz to reach 13 Zip recorded in B1b l. h. Finally, he assigns to the date 8 Manik 10 Zotz the Initial Series 9.18.2.9.7,² although there is no real foundation for this reading in either A1 or B1.

The writer believes that Förstemann's interpretation of A1, B1 not only disagrees with the glyphs actually recorded, but that it is also incompatible with Maya practice and thought as set forth in their inscriptions. No single instance is recalled where day-signs are omitted and their corresponding month-parts given, though the reverse is sometimes the case, as we have already seen (see Stelæ 2, 3 and I for examples, pp. 138, 157 and 178 respectively). Moreover, the date 9.18.2.9.7 is almost 100 years later than the Initial Series of Stela J, and for this reason alone it should be viewed with suspicion. All things considered, it seems probable that Förstemann's interpretation of these two glyph-blocks must be rejected in its entirety.

Beginning with A2, the text on both the north and south sides is perfectly clear until the last two glyph-blocks on the south side, which are effaced.

¹ See Förstemann, 1904a, p. 361.

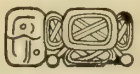

² The number of days, 1,426,507, is equal to the above date in Maya chronology, viz:

9	144,000 =	1,296,000
18	7,200 =	129,600
2	360 =	720
9	20 =	180
7	1 =	7
		1,426,507

This passage gives the basis for Förstemann's correlation of Maya and Christian chronology. For further discussion of this point, see Appendix II.

North Side, A2	End of 1 tun	
B2, A3a	End of 2 tuns	
B3	End of 3 tuns	
B4	End of 4 tuns	ending-sign in B4b u. h. doubtful.
A5b, B5	End of 5 tuns	end of a hotun
A6	End of 6 tuns	
A7	End of 7 tuns	
B7b, A8a	End of 8 tuns	
B8b	End of 9 tuns	c1a u. h. effaced, probably an "ending-sign"
South Side, D1 l. h., c2	End of 10 tuns	end of a lahuntun
D2	End of 11 tuns	
D3 u. h.	End of 12 tuns	apparently no "ending-sign"
c4 l. h., D4 u. h.	End of 13 tuns	
c5 l. h., D5 u. h.	End of 14 tuns	
c6 l. h., D6 l. h.	End of 15 tuns	end of a hotun
c7	End of 16 tuns	
c8 u. h.	Effaced	probably recorded end of 17 tuns
D8 u. h.	Effaced	probably recorded end of 18 tuns

It is clear from the context that the inscription on the south side is a continuation of the inscription on the north side and that the one follows the other without break or interruption. It is also clear from a preliminary inspection of the text that we have here a record of 16 and perhaps 17 or even 18 consecutive tuns, but what is the position of these tuns in the Long Count? Where were they counted from? What was their starting-point, and why were there probably 18 of them?

It will be noted in the foregoing summary that the glyph denoting "the end of 5 tuns," A5b, *i. e.*, the fifth in the above series, is followed by a glyph denoting "the end of a hotun," B5; and further, that the glyph expressing "the end of 15 tuns," c6 l. h., is also followed by this same hotun-ending sign, D6 l. h. This association of the glyph denoting "the end of a hotun" with glyphs recording the ends of the fifth and fifteenth tuns, respectively, and with no others, would at first sight appear to indicate that this series of tuns was counted either from a katun or a lahuntun-ending, and probably from the former, since immediately following "The end of 10 tuns," c2 l. h., which, of course is both a lahuntun-ending and a hotun-ending as well, is the following sign,  which is identical with Glyph 24 (Maudslay's numeration) on the  west side, already identified as a possible variant of the lahuntun-sign. On the other side of this stela, as we have already seen, this glyph follows immediately after the date 7 Ahau 3 Cumhu, which the Initial Series on the east side, as will appear later, declares to have been 9.13.10.0.0 7 Ahau 3 Cumhu. Therefore, in order to have the tenth tun in the series, bring the count forward to this date, 7 Ahau 3 Cumhu "End of a lahuntun," it is necessary to have this count start from the katun-ending 9.13.0.0.0 8 Ahau 8 Uo.

But there is another explanation which is possible here, to account for the record of the hotun-signs and lahuntun-sign in B5, D6 l. h., and c2 respectively, which, moreover, explains why the unusual number of 18 tuns, otherwise of no particular significance to the Maya, should have been

recorded on the north and south sides of this monument. If we assume that these three glyphs stand for 1,800-day and 3,600-day periods in general, and not for specific 1,800-day and 3,600-day periods counted from katun-endings only, it is possible to count this series of tuns forward from the opening date on the west side, namely, 9.12.12.0.0; and with the 18 tuns recorded on the north and south sides, to exactly reach the contemporaneous date of this stela, 9.13.10.0.0, recorded on its east side.

This so satisfactorily explains why 18 tuns should have been recorded on this monument that the writer believes that it may be accepted that this series was counted from 9.12.12.0.0 and that it ended in 9.13.10.0.0, the contemporaneous date of Stela J; and further, that its fifth, tenth, and fifteenth tuns fell on 9.12.17.0.0, 9.13.2.0.0, and 9.13.7.0.0 respectively, instead of on 9.13.5.0.0, 9.13.10.0.0, and 9.13.15.0.0. And finally, that the last tun of the series fell on 9.13.10.0.0 instead of on 9.13.18.0.0, as it would have done if the series had been counted from 9.13.0.0.0.

If this explanation is not accepted, and it is held that the hotun and lahuntun signs could only refer to fifth, tenth, and fifteenth tuns, counted from katun-endings in the Long Count, as 9.13.0.0.0 for example, it necessitates the further assumption that the last 8 tuns on the south side were 9.13.11.0.0 to 9.13.18.0.0 inclusive, that is to say, that they either had not yet passed, *i. e.*, were future time when Stela J was erected, or else the north side was left blank, and they were added tun by tun after 9.13.10.0.0, as they passed. Against this latter hypothesis is the fact that the style of carving is the same throughout this monument, and it doubtless may be rejected.

Summing up this evidence, therefore, it seems probable that there were originally a series of 18 tuns on the north and south sides, which were counted from the opening date on the west side to reach the contemporaneous as well as the Initial Series date on the east side.

In addition to the record of the signs for the hotuns and lahuntun after the ends of the fifth and fifteenth tuns and of the tenth tun respectively, there seems to be a five-year periodicity noticeable in other signs of this series. For example, the sign following "the end of 1 tun," B2a, is a grotesque head surmounting apparently the normal form of the cycle-sign. The sign following "the end of 6 tuns," B6, *i. e.*, 5 tuns farther on, is the moon-sign surmounting the cycle-sign and followed by a grotesque head of similar aspect. The sign following "the end of 11 tuns," c3, 5 tuns farther on, is the cycle-sign surmounted by the double Imix and an oval element. The sign following "the end of 16 tuns," D7, still 5 tuns farther on, shows the Imix sign and the oval. It is apparent that these four tun-endings, five years apart from one another, are followed by glyphs in which the same elements recur.

Although the other sets show less similarity between the glyphs following their respective tun-endings as "the ends of 2, 7, and 12 tuns," "the ends of 3, 8, and 13 tuns," and "the ends of 4, 9, and 14 tuns," on the whole there seems to be a general resemblance between the signs in each of these groups.

What this resemblance signifies is impossible to say. In the case of the fifth, tenth, and fifteenth tuns the following glyphs in each case declare that 1,800-day periods had come to their ends. If the other groups are analogous, the cycle, oval, Imix, and grotesque-head elements after the first, sixth, eleventh, and sixteenth tuns may possibly declare that the first fifth of a hotun had come to an end in each case. Thus the special elements characterizing the glyphs after the second, seventh, and twelfth tuns may signify that the second fifth of a hotun had come to an end in each case, etc.

Unfortunately, the last two glyph-blocks, c8 and D8, are badly effaced, and it is impossible to tell whether or not they recorded "the end of 17 tuns" and "the end of 18 tuns" respectively.

It will be noticed, however, in this connection, that the tun-signs on the south side occupy less space than those on the north side; and that while the latter in every case extend the entire height of the glyph-blocks, the former in every case occupy only half the height of a glyph-block. Since the upper halves of c8 and D8 are entirely destroyed, it is impossible to tell whether the sixteenth and seventeenth tun-endings had been recorded here or not.

There is nothing on the sides already presented, the north, west, or south, which definitely fixes the position of Stela J in the Long Count, *i. e.*, which indicates what hotun it was erected to commemorate. It is true the date 7 Ahau 3 Cumhu occurs prominently on the west side, but it is not accompanied by its corresponding Initial Series and it remains for the inscription on the east side to make this fact known.


The sequence of the glyphs on the east side follows the diagonal turnings of a woven pattern back and forth. Maudslay, as already stated, has worked out the order of reading very carefully, and the notation followed here is that suggested by him.¹

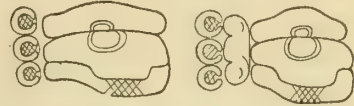
Glyph 0, near the upper right-hand corner, is the Initial Series introducing glyph, and this is followed by the Initial Series 9.13.10.0.0 7 Ahau 3 Cumhu in Glyphs 1 to 6, 12 u. h., as follows:



Glyph 0	Initial Series introducing glyph
1	9 cycles
2	13 katuns
3	10 tuns
4	0 uinals
5	0 kins
6	(7 Ahau) effaced
12	3 Cumhu


This Initial Series is clear, with the exception of the day in Glyph 6, which is entirely destroyed, and the month coefficient in Glyph 12 u. h., which at first sight appears to be 8. Fortunately, this uncertainty in the terminal date is amply compensated for by the clearness of the Initial Series number, concerning which there is no doubt. By referring to Goodman's tables, the terminal date corresponding to the Initial Series 9.13.10.0.0 will be found to be 7 Ahau 3 Cumhu. The day of this was doubtless recorded

¹ See Maudslay, 1889-1902, vol. 1, pl. 71.


immediately after the kins of the Initial Series, that is, in Glyph 6, now destroyed. The element  between the dots of the month coefficient and the month-sign in the upper part of Glyph 12 is probably ornamental and not numerical, its presence being due to the desire to fill the space available without distorting the month-sign. Without this ornamental element, the month-sign would have been elongated into an unsightly shape which has been obviated by the use of this decorative element. The hotun which is marked by Stela J is therefore 9.13.10.0.0 7 Ahau 3 Cumhu.



Following along the windings of the mat pattern, the next calendric glyphs are found at 18 and 19, which respectively record 0 kins, 10 tuns, and 13 katuns. This would appear to be but a repetition of the Initial Series date with the Cycle 9 understood and the uinal coefficient omitted, thus: (9).13.10.(0).0. The omission of the uinal-glyph in a number is exceedingly rare. The common practice is to omit the kin-sign and attach its coefficient to the uinal-sign, thus:  3.0. But here the uinal-sign is omitted and the kin coefficient is  attached to its own glyph. Such omissions occur only when the sign omitted has a coefficient of 0, as the uinal has here.¹

The next calendric sign is Glyph 27, which appears to be 7 Lamat, not the regular Lamat sign, however, but the Venus-variant already described in connection with Stela 23. (See p. 150.) This character occurs at the edge of the mat pattern and has been somewhat mutilated in consequence so as to fit the requirements of the space available. Passing over the next four glyphs, there is reached in 32 and 33 a distance number composed of  tuns, uinals, and kins.

Glyph 32*b* is very clearly 6 tuns. Glyph 32*a* is 11 uinals, the dot being rather small and squeezed in between the bars and the border, and Glyph 33 is either 11 or 12 kins. The kin coefficient now appears as 11, but there is room for just one more dot to its left, and indeed there is a decided protuberance of the stone there as if a dot had been effaced, which would make it 12. Moreover, if used at 12, the day 7 Lamat in 27 can be connected by this distance-number with the Initial Series terminal date, for if 6.11.12 is counted forward from the day 7 Lamat, the day 7 Ahau will be reached.

¹ A similar, although not identical, case occurs on Altar U here at Copan. Glyph A2 (Maudslay, 1889-1902 vol. 1, pl. 98) of this text shows a tun-sign  surmounted by a coefficient of 13 and preceded by another of 2. The context shows that 13 tuns, 2 uinals, and 0 kins are recorded here. In other words, since the kin-sign and coefficient are attached directly to the tun-sign (see p. 301).

Another case of this kind is found on Stela 12 at Yaxchilan. Glyph A6 (Maler, 1903, pl. 76) of this text shows a tun-sign surmounted by a coefficient of 10 and preceded by another of 6. The context shows that 10 tuns, 0 uinals, and 6 kins are recorded here. And since the uinals are at 0, both the uinal-sign and its coefficient, as well as the kin-sign, have been omitted and the kin coefficient attached directly to the tun-sign. The last two cases are diametrically opposed to each other. In the former the kin-sign and coefficient are omitted and the uinal coefficient attached directly to the tun-sign. In the latter the uinal-sign and coefficient are omitted and the kin coefficient attached directly to the tun-sign. An inspection of these two glyphs reveals no element or character which could indicate this difference, nor indeed did such probably exist. The different procedure in each case was doubtless governed by the whim of the sculptor.

But we have seen that this is the day of our Initial Series terminal date, *i. e.*, 9.13.10.0.0 7 Ahau 3 Cumhu; and it is therefore probable that the 7 Ahau, reached by counting 6.11.12 forward from 7 Lamat, is the day 9.13.10.0.0 7 Ahau 3 Cumhu, and from this the Initial Series of the day 7 Lamat in Glyph 27 can be shown to have been 9.13.3.6.8 7 Lamat 1 Mol, as follows:

9.13.10. 0. 0 7 Ahau 3 Cumhu
 6.11.12
 9.13. 3. 6. 8 7 Lamat 1 Mol

This latter date is just nine and one-third tonalamatls earlier than the lahuntun-ending commemorated by this monument, which recalls the fact that four-fifths of a tonalamatl was also recorded on Stela I. There follows a résumé of the chronological parts of this inscription:

West side, 1, 24, 23, 16, 17	(9).12.12.0.0 1 Ahau (8 Zotz)
14 l. h., 15a	End of Cycle 13
29, 30	End of Cycle 13
31, 33	(9.13.10.0.0) 7 Ahau 3 Cumhu
North side, A1	6.10.0.0
B1	(10.0.0.0.0) 7 Ahau 18 Zip
B1	End of Cycle 10
A2	End of 1 tun (9.12.13.0.0)
B2, A3a	End of 2 tuns (9.12.14.0.0)
B3	End of 3 tuns (9.12.15.0.0)
B4	End of 4 tuns (9.12.16.0.0)
A5, bB5	End of 5 tuns (9.12.17.0.0) end of a hotun
A6	End of 6 tuns (9.12.18.0.0)
A7	End of 7 tuns (9.12.19.0.0)
B7b, A8a	End of 8 tuns (9.13. 0.0.0)
South side, B8b	End of 9 tuns (9.13. 1.0.0)
D1 l. h., c2	End of 10 tuns (9.13. 2.0.0) end of a lahuntun
D2	End of 11 tuns (9.13. 3.0.0)
D3 u. h.	End of 12 tuns (9.13. 4.0.0)
c4 l. h., D4 u. h.	End of 13 tuns (9.13. 5.0.0)
c5 l. h., D5 u. h.	End of 14 tuns (9.13. 6.0.0)
c6 l. h., D6	End of 15 tuns (9.13. 7.0.0) end of a hotun
c7	End of 16 tuns (9.13. 8.0.0)
c8 u. h.	End of 17 tuns (9.13. 9.0.0)?
D8 u. h.	End of 18 tuns (9.13.10.0.0)?
East side, o, 1-6, 12 u. h.	9.13.10. 0. 0 (7 Ahau) 3 Cumhu (Initial Series)
18, 19	(9)13.10.(0) 0
27	(9.13. 3. 6. 8) 7 Lamat (1 Mol)
32, 33	6.11.12
	(9.13.10. 0. 0 7 Ahau 3 Cumhu)

Stela J was probably the first monument erected after the Great Plaza was laid out. At least, it is the earliest monument which has a definite correlation with a structure (Mound 3) belonging to the Great Plaza.

STELA 5.

Provenance:	At Group 8, 1 kilometer west of the Main Structure. (See plate 3.)
Date:	9.13.15.0.0 13 Ahau 18 Pax (??) or 9.14. 0.0.0 6 Ahau 13 Muan (?). ¹
Text, (a) photograph:	Spinden, 1913, plate 19, 1 and 2 (parts of front and back only).
(b) drawing:	plate 19, c and d.
References:	Gordon, 1896, pp. 35, 38, 42. Maudslay, 1889-1902, vol. I of text, pp. 16, 67. Spinden, 1913, pp. 159, 161, 164 and table 1.

¹ For other monuments recording these same hotun-endings, see Appendix VIII.

Maudslay probably refers to Stela 5 in his introduction in the following passage: "There is a broken monolith lying in the scrub to the north of the track to Cachapa."¹ (See plate 3.) This could hardly refer to Stela 6, the only other stela in this vicinity, since Stela 6 was still unbroken when Gordon first visited Copan several years after Maudslay was there.² Stela 5 is in fact shattered into a number of pieces, most of which fortunately have been recovered. The most important piece, that presenting the beginning of the Initial Series, was found by Spinden, as already noted (p. 164), in 1912, built into the stone wall on the south side of the road leading from the village to the Main Structure about opposite the monument. At this point there is a confused jumble of sculptured fragments, the wreckage of Stela 5 and its two altars, and when the wall was built this broken material was incorporated in it. Notwithstanding the fact that in 1916 the writer made a thorough examination of the stones in this wall for a distance of 125 meters, *i. e.*, 63 meters each way from the stela, not a piece of it was found, and it is possible that the fragment still missing was broken into very small pieces, which are now unrecognizable. However, Spinden's fortunate discovery of the piece presenting the Initial Series, together with the writer's discovery of a Secondary Series on the opposite side, makes possible very close, if not indeed exact, dating of the monument.

The front and back of Stela 5 are sculptured with human figures, one having a grotesque and the other a human face. According to Gordon, these faced east and west.³ The narrow north and south sides each have a single column of 10 glyph-blocks, making a total of 20 for the entire text. On the basis of this arrangement of the design, Stela 5 may be assigned to Class 5, the second example of this class thus far encountered, Stela 3 being the first. Facing the figure with the human face, the Initial Series is presented on the left side. (See plate 19, *c.*)

The Initial Series introducing glyph is at A1. The next glyph, A2 u. h., is doubtless 9 cycles. The coefficient is badly effaced, although sufficient remains to show that it was a normal type of the human head. The cycle-sign is a human head with the clasped hand on the lower jaw. The lower half of A2 is clearer. The normal form of the katun-sign shows unmistakably in A2*b* l. h., and its coefficient in A2*a* l. h. is one of the two head-variants for 13. (See Bowditch, 1910, plate 16, or Morley, 1915, figure 52.)

The tun coefficient A3*a* u. h., although it is better preserved, is less certain. The fleshless lower jaw appears, clearly denoting that the number is above 10, but the upper part of the head is indistinct, rendering identification difficult. The square irid would appear to indicate 14. (Compare this glyph with Bowditch, 1910, plate 16, or Morley, 1915, figure 53.)

The uinal-sign appears in A3*b* l. h., but following this there is a break, the missing fragment having two and a quarter glyph-blocks, A3*a* l. h., A4, and A5, including the uinal coefficient. A4 u. h. was doubtless the

¹ Maudslay, 1889-1902, vol. 1 of text, p. 16.

² Gordon, 1896, plate 7.

³ *Ibid.*, p. 35.

kin-sign and coefficient and A4 l. h. the day-sign and coefficient; and finally, A5, the first two glyphs of the Supplementary Series.

The next two glyph-blocks, A6 and A7, show the closing glyphs of the Supplementary Series, the last, Glyph A, appearing in A7*b* l. h. A8 u. h. is the month of the Initial Series terminal date, and is very clearly 18 Kayab. The writer gave these pieces of Stela 5 a very close study in 1912 and again in 1915 and 1916, and feels certain of the above identifications. This Initial Series therefore may be deciphered as follows:

A1	Initial Series introducing glyph
A2 u. h.	9 cycles
A2 l. h.	13 katuns
A3 u. h.	over 10 tuns and best as 14
A3 l. h.	? uinals (missing)
A4 u. h.	0, 5, 10 or 15 ¹ kins (missing)
A4 l. h.	? ? (missing)
A8 u. h.	18 Kayab

The next step in deciphering this date is to ascertain the places in the second half (*i. e.*, after Tun 10) of Katun 13 of Cycle 9, where 18 Kayab, the month of the Initial Series terminal date, could have occurred. These will be found to have been as follows:

(1) 9.13.11.0. 0	3 Ahau 18 Kayab
(2) 9.13.12.0. 5	4 Chicchan 18 Kayab
(3) 9.13.13.0.10	5 Oc 18 Kayab
(4) 9.13.14.0.15	6 Men 18 Kayab
(5) 9.13.15.1. 0	7 Ahau 18 Kayab
(6) 9.13.16.1. 5	8 Chicchan 18 Kayab
(7) 9.13.17.1.10	9 Oc 18 Kayab
(8) 9.13.18.1.15	10 Men 18 Kayab
(9) 9.13.19.2. 0	11 Ahau 18 Kayab

It is certain that the Initial Series on Stela 5 is one of the foregoing, although, because of the loss of A3 l. h., and A4, and the failure to identify A3*a* u. h. exactly, it is impossible by a mere inspection of the text to decide which. Arguing from antecedent probability, the kins would be more likely to be 0 than 5, 10, or 15, which would give the day-sign Ahau, instead of Chicchan, Oc, or Men. If this assumption is correct, all but the first, fifth, and ninth of the above readings would be eliminated, and of these, since it is a tun-ending, the first is the more likely to be correct. It seems unsafe, however, to make this perfectly legitimate assumption here, because of the nature of the first two glyph-blocks on the opposite side of the monument, namely, B1 and B2, which clearly record a Secondary Series composed of 15 kins (B1*b*), and possibly some uinals (B2*a*). The kins of this number are perfectly clear in B1*b*, and it is barely possible that B2*a* may record some number of uinals.

Leaving this Secondary Series number indeterminate for the present, let us continue the inspection of our text. Passing over the next two glyph-

¹ Since the month coefficient in the Initial Series terminal date is 18, the kin coefficient must have been one of these four numbers, corresponding with the days Ahau, Chicchan, Oc, and Men respectively. This latter is true because only these four days can have a corresponding month coefficient of 18.

blocks, B₃ and B₄, we reach a break in the inscription, B₅, the upper half of B₆ being gone. Fortunately, the lower half of the latter is sufficiently preserved to show that it had recorded the day 10 Ahau, both the coefficient and day-sign showing very plainly; and following this, in B_{7a} u. h. is the month 3 Pax, both the coefficient and month-sign being again very clear.

The date 10 Ahau 3 Pax occurred in Cycle 9 nearest the Initial Series date on this monument at the following places:

9.11. 1. 4.0	10 Ahau 3 Pax
9.13.13.17.0	10 Ahau 3 Pax
9.16. 6.12.0	10 Ahau 3 Pax

And since the second is the only one falling in the same katun as the Initial Series terminal date of the stela, it may probably be accepted as the value intended here.

Returning once more to our table of possible values for the Initial Series itself, it will be found that the fourth, 9.13.14.0.15, is only 1.15 (35 days) later than this date. But we have already seen that 15 kins are recorded in B_{1b}, and possibly 1 uinal in B_{2a}, and we are therefore justified in assuming that the Initial Series recorded on this monument probably is 9.13.14.0.15 6 Men 18 Kayab, and that the Secondary Series number in B_{1b}, B_{2a} was counted backward from it. In corroboration of this reading, it should be remembered that the preliminary inspection of the tun coefficient gave 14 as its best value. A summary of the count follows:

9.13.14. 0.15	6 Men 18 Kayab
1.15	backward
9.13.13.17. 0	10 Ahau 3 Pax

Neither of these dates, however, is a hotun-ending, and for this reason we must probably look farther for the contemporaneous date of the stela. Unfortunately, the last three glyph-blocks where this matter was probably recorded, B₈–B₁₀, are in very bad condition, although traces of several numbers appear, particularly in B₈ u. h., B₈ l. h., B_{9a} u. h., and B_{9b} u. h.

The first of these, B₈ u. h., has a coefficient of 1, 2, or 3 and hardly can have a bearing here, as the head to which it is attached is neither a day or month-sign or a period-glyph. The next, however, B_{8a} l. h., has a coefficient of 9 or 14. Could this be Katun 14? Following this in B₉ u. h. there are faint traces of what may have been a Calendar Round date. The coefficients may possibly be 6 and 13 respectively, although these readings are very doubtful indeed.¹

The two hotuns most likely to have been commemorated by Stela 5, because they are nearest its two known dates, are 9.13.15.0.0 13 Ahau 18 Pax and 9.14.0.0.0 6 Ahau 13 Muan; and we have just seen that the terminal date of the latter may possibly be recorded in B₉ u. h. and perhaps the period itself in B_{8a} l. h. At least B₉ u. h. more closely resembles 6 Ahau 13 Muan than it does 13 Ahau 18 Pax. Unfortunately, the last two glyph-blocks on this side of Stela 5 are so badly weathered that it is impossible to say what had been recorded here, and it is therefore unwise to press decipherment

¹ These doubtful coefficients are not clearly shown in the drawing of this glyph-block in plate 19, *d*.

farther than to point out that this stela probably dates either from 9.13.15.0.0 or from 9.14.0.0.0.

Neither of the altars now associated with Stela 5 were originally correlated with it, as we have already seen, and, indeed, if either of the above dates is correct, an altar with glyphs would hardly be necessary, since the stela itself probably recorded the hotun-ending it was erected to commemorate. Some sort of an altar doubtless was originally associated with it, but not necessarily one with an inscription. A summary of the text follows:

A1-A4, A8 u. h.	9.13.14. 0.15	6 Men 18 Kayab
B1b, B2a	1.15	backward
B6b l. h., B7a u. h.	9.13.13.17. 0	10 Ahau 3 Pax
B9 u. h.	9.14. 0. 0. 0	6 Ahau 13 Muan???
B8a l. h.	End of Katun 14???	

While this interpretation is not as satisfactory as could be desired, it is probably correct, for even if the suggested readings for B8 l. h. and B9 u. h. be rejected, the certain identification of the katun coefficient as 13 and of the tun coefficient as above 10, dates Stela 5 within 10 years of its true position in Maya chronology, *i. e.*, between 9.13.10.0.0 and 9.14.0.0.0.

One other point remains to be considered in connection with Stela 5. It will be remembered that Altar X was recovered from the foundations of this stela (p. 63). Below Altar X, however, a still more archaic sculpture was found, a crudely fashioned human figure, the lower legs and forearms of which are drawn tightly against the body, so that no part of it protrudes from the block, the whole effect being very clumsy and primitive. The figure is headless, and there are no glyphs inscribed on it. An almost identical figure was found under Altar Y, which had been similarly reused in the foundations of Stela 4 during the Great Period at the Great Plaza (p. 356). These two archaic monuments (see figure 67, *a* and *b*, respectively), representing, although crudely, the human figure in the round, Spinden believes to be the earliest attempts at sculpture in stone now extant at Copan, and with the possible exception of Stela 20, this appears as not improbable. He has placed the following description of them at the writer's disposal:

"Under Altars X and Y were found two crudely sculptured figures of a still earlier artistic type, unfortunately headless and battered. Although undatable, since they are devoid of inscriptions, these two sculptures may safely be termed the earliest examples of art in stone so far found at Copan. They appear to be relics of the low, widespread culture that preceded the Maya civilization, and they can be matched closely by archaic figures in stone from El Salvador and the highlands of Guatemala.

"The sculpture under Stela 5 is the simpler of the two, and it is possible to make out the arms and legs of a squatting figure carved in low relief on a heavy boulder. The sculpture under Stela 4 is somewhat more elaborate, since the heavy torso is adorned with feathers. No careful study was made of this stone, which is broken in two pieces (not to mention the missing head) and measures slightly under a meter in height. A hasty field sketch shows the arms bent with the hands resting

on the full paunch. A number of feathers hang downward from the arms and from the shoulder blades at the back. There are markings around the neck, that make a collar decoration, and on the breast there is a large ring. The feet and legs do not show clearly at the bottom of this carved boulder, but there are details, difficult to make out, which take their places. At the base of the back stands an ornamental detail of feathers that rise and then droop over on either side.

"The figure under Stela 5 is of the Archaic type pure and simple, while that under Stela 4 would seem to be transitional in type. While it shows the squat seated figure with limbs carved in low relief, and arranged in an attitude common among Archaic sculptures, it also shows a decorative or symbolic use of feathers that points to an awakened skill. During the long age of the far-flung and slowly developing Archaic culture, art was simple and direct and devoid of elaborate symbolism or formalized designs. The Maya of the lowlands gave the first expression of composite forms arising out of religious concepts. On the very early statuette of San Andres Tuxtla we see a composite of human, bird, and serpent characters. So too on this early Copan product, it may be that some composite creature was intended, some primitive plumed animal or dragon.

"In the more or less arid country south and west of Copan, where the Archaic culture had flourished for many centuries before Copan was founded, many examples of stone sculptures in the purely Archaic type occur. These are characterized by bulging eyes, flat noses, protruding lips, simple collars, arms and legs in low flat relief, and heavy squat bodies. The arms and legs are usually arranged in one of two fashions—either they are flexed against the body with knees up and elbows down, or the legs are bent horizontally round the base of the body, while the hands, with forearms horizontal and elbows pressed against the side, are made to rest on the breast or lower down on the abdomen. Sometimes there is a ring on the front of the body intended to represent the navel, or perhaps the heart. For instance, at the side of the road leading from Guatemala City to Mixco there is a modern gate adorned with two stone figures of the Archaic type, both of which show clearly enough this ring on the heart. (See figure 67, *c*.) These sculptures were found on the nearby site of an ancient city of great extent where heads of pottery figurines of the Archaic type are mingled with those of Maya type, and where several sculptured monoliths clearly show Maya influence in hieroglyphs and other features that possibly came on after the city was founded. In the American Museum of Natural History there is a similar squat figure of granite from the ruins of Santa Cruz Quiché. While it is probably true that sculptures of the Archaic type persisted on the highlands long after they had been succeeded on the lowlands by advanced types of art, still the general case in favor of these two broken figures found under Stelæ 4 and 5 respectively at Copan being examples of protohistoric sculpture, *i. e.*, before 900.0.0, must be regarded as very strong."

Stela 5 is the last monument now known at Copan which dates from the Middle Period; but before proceeding to review the sculptures of this period, it is first necessary to describe a piece, Fragment Y', which probably should also be included therein.

FRAGMENT Y'.

Provenance:	Original position unknown, found in a wall near the house of Pablo Urrutia north of the road leading from the village to the Main Structure, and about midway between Group 8 and the Rio Sesesmil. (See plate 3.)
Date:	Middle Period?
Text, drawing:	figure 35.

Fragment Y' is 25 cm. long and 20 cm. high. It was found in a stone wall near the house of Pablo Urrutia, north of the road leading from the Main Structure to the village in the general vicinity of Group 8. Part of one glyph only has been preserved, which is very clearly Glyph C of the Supplementary Series. (See figure 35.) Note the moon-sign, hand, and head elements, all components of this sign. It is impossible to tell from this piece whether it had been part of a stela, altar, or some mosaic. The carving is clear, and the relief rather lower than that of the Great Period, for which reason it has been assigned to the Middle Period. In fact, the only certain thing about this fragment is that originally it accompanied an Initial Series. This is so because Supplementary Series are never recorded without accompanying Initial Series, and the single sign preserved is surely Glyph C of the Supplementary Series.

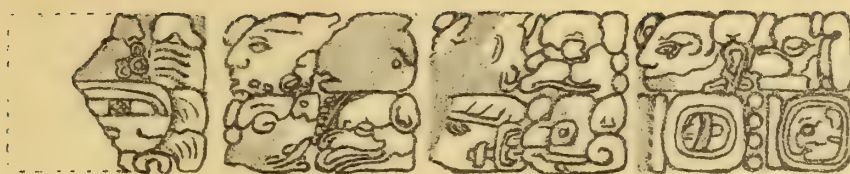


FIG. 35.—Inscription on Fragment Y'.

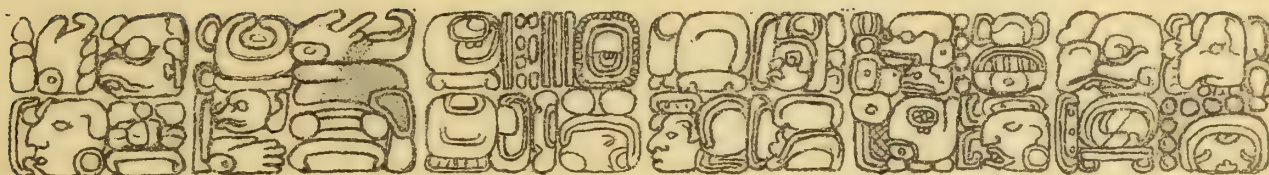
The history of Copan during the Middle Period may be summarized briefly as follows: Old Copan (Group 9), the chief settlement of the region in the Early Period, doubtless carried over into the Middle Period as a place of first importance. Indeed, before the final concentration at the Main Structure took place there was even a more extended occupation of the valley, and more distant settlements were established.

As early as 9.11.0.0.0 the branch of the Maya living in this region had accumulated sufficient reserves of labor and food, and found themselves possessed of adequate administrative machinery to warrant a considerable territorial expansion. On this latter date no less than 7 stelæ and their accompanying altars were erected in almost as many outlying settlements, varying in distance from 1 to 14 kilometers from Old Copan. At Hacienda Grande, 3.5 kilometers west (Group 13), in the neighborhood of Stelæ 12 and 10, on the hills east and west of Old Copan (Groups 3 and 12 respectively), in the valley itself at the Main Structure, 2 kilometers east of Old Copan, the last soon to become the principal center in the whole surrounding region, at Stela 13, 8.5 kilometers distant, near the modern village of Santa Rita (Group 2), and finally 14 kilometers off at Santa Rita itself (Group 1), settlements had been founded and were flourishing. In short, the intensive occupation of the whole valley was at last under way.

With the resources of the surrounding country under control, the next step seems to have been the selection of a site for the religious and governmental center of the tribe, *i. e.*, the capital. For some unknown reason Old Copan does not appear to have been considered as worthy of this honor. Perhaps the site was not large enough. At least, it was not able to hold its own from this time on, either in size or in the number of its sculptured remains as compared with the group 2 kilometers farther east, that is to say, the Main Structure proper. This latter group may have been founded some time during the Early Period, since the complexity



a



b

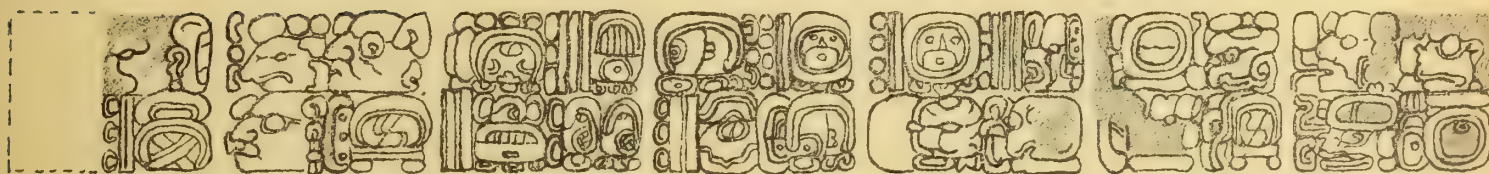


c

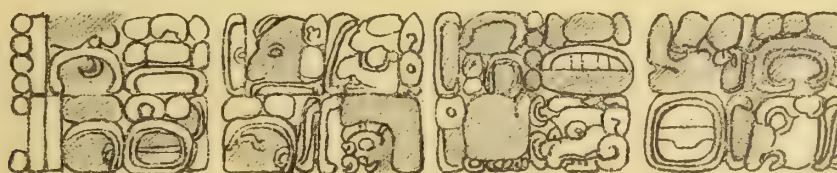
Altar H'. Inscriptions on (a) the east side, (b) the north side, and (c) the west side. Drawn from the original.



d



e



f

Altar I'. Inscriptions on (d) the east side, (e) the north side, and (f) the west side. Drawn from the original.

of its Acropolis, as exposed by the river, indicates a long period of growth. In the vertical section cut by the river a number of paved plaza-floors at different levels, as well as the walls of earlier buildings and drains, may be distinguished. To account for this architectural complex, even as it was during the Middle Period, it is necessary to postulate a considerable antiquity of origin, extending back into the Early Period. Probably from the earliest times the fertility of the land along the river, subject as it was to annual overflow, had been recognized, and it is quite likely that a settlement had been made here very early. But that it did not become the most important in the valley until after 9.11.15.0.0, the date of Stela 1, is probable from the facts already presented. Possibly the erection of Stelæ 10 and 12, which antedate the building of the Great Plaza by at least 25 years, in such a way that they define a line of sight across the Main Structure, may have had something to do with increasing the importance of an earlier settlement already located here.

The Main Structure may have been started in the Early Period, but if so, it did not assume the important position it later enjoyed until the Middle Period was well under way. Thus it seems likely that most, if not all, of the monuments found there, which antedate 9.11.15.0.0,¹ and some possibly even of later date,² can not be regarded as *in situ*. The Great Plaza, we have seen, was not laid out until at least 10 years later (9.12.5.0.0), and possibly not for another 25 years (9.13.10.0.0).

By 9.13.10.0.0, however (the date of Stela J), the Main Structure seems to have become the chief settlement in the valley, and Old Copan fell back into a position of secondary importance. By this time the Great Plaza was probably laid out in its final form, and its construction was well under way, if not indeed actually nearing completion. But even with the adoption of the Main Structure as the principal settlement or capital, the practice of erecting monuments in the outlying communities does not appear to have been discontinued altogether. Old Copan, as we shall see later (see p. 334), was occupied down to the close of the Great Period, and at least two other groups besides the Main Structure—No. 10, that near the modern cemetery, and No. 8, that just east of the Rio Sesesmil—had later monuments erected at them.³ (See plate 3.)

Of the monuments at the Main Structure dating from the last half of the Middle Period, with the exception of Stelæ I and J, that is to say, Altars K, H', and I', not one is *in situ*, strictly speaking, probably having been carried to their present positions from other earlier ones.

The closing katun of the Middle Period, 9.14.0.0.0 to 9.15.0.0.0, does not seem to be represented by any monuments, either large or small. Perhaps there was a concentration of energy elsewhere, possibly all available labor

¹ Stelæ 16, 17, E, and P, Altars Y and A' of the Early Period, and perhaps Stelæ 2 and 3 of the Middle Period.

² Altars K, H', and I'.

³ Stela 8 (9.17.12.6.2) was found practically *in situ* at what is now the modern cemetery (Group 10), and Stelæ 6 and 5 (9.12.10.0.0 and 9.13.15.0.0 or 9.14.0.0.0 respectively) were found, also probably *in situ*, at the small group of mounds just east of the Rio Sesesmil (Group 8).

was being expended upon the erection of the mounds and terraces in the neighborhood of the Great Plaza (the Hieroglyphic Stairway of Mound 26 for example, see page 272), at least no monuments dating from this katun have been found, and as already pointed out, the last monument of the period, Stela 5, was not even erected at the Main Structure.

We may say, in closing, that by the middle of the Middle Period the tide of concentration had finally turned toward the settlement standing where the Main Structure later was to grow up, and that although all future monuments were not erected there, the great majority were. This settlement doubtless grew at the expense of the others, and became, during the Great Period, the principal city of the region, and indeed one of the very largest in the Old Empire.¹

Turning to a more detailed consideration of the monuments of the Middle Period, it will be found that there are twelve stelæ and twelve altars.² Of the latter, however, all except five are now correlated with their original stelæ, or if not now actually with them, have been assigned to them in the foregoing pages, as, for example, the East Altar of Stela 5 with Stela 1, which, after the practice followed in classifying the monuments of the Early Period, reduces the number of altars from twelve to five.³

The stelæ of the Middle Period may be arranged into three groups according to the arrangement of their designs, as follows:

- 3.⁴ Stelæ having inscriptions on all four faces: Stelæ 12, 10, 19, 13, and J.
4. Stelæ having inscriptions on three faces, the fourth being carved with the representation of the human figure: Stelæ 2, 23, 1, I, and 6.
5. Stelæ having inscriptions on two alternate faces, the remaining two being carved with representations of the human figure: Stelæ 3 and 5.

Although the stelæ of the Middle Period differ in the arrangement of their designs,⁵ all of them have one important point in common, namely, all stelæ of the Middle Period present Initial Series. A list of these follows:

Stela 12	9.10.15. 0. 0	6 Ahau 13 Mac
Stela 2	9.10.15. 0. 0	6 Ahau 13 Mac
Stela 23	9.10. ? ? ?	? ? 8 ?
Stela 10	9.10.19.13. 0	3 Ahau 8 Yaxkin
Stela 19	9.10.19.15. 0	4 Ahau 8 Chen
Stela 13	9.11. 0. 0. 0	12 Ahau 8 Ceh
Stela 3	{ 9. 0. 0. 0. 0	8 Ahau 13 Ceh and
	{ 9.11. 0. 0. 0.	12 Ahau 8 Ceh
Stela 1	9.11.15.14. 0	11 Ahau 8 Zotz
Stela I	9.12. 3.14. 0	5 Ahau 8 Uo
Stela 6	9.12.10. 0. 0	9 Ahau 18 Zotz
Stela J	9.13.10. 0. 0	7 Ahau 3 Cumhu
Stela 5	9.13.14. 0.15	6 Men 18 Kayab?

¹ For a review of the contemporaneous history of the other Old Empire cities, see Chapter V, pp. 433-442.

² See Appendix IX.

³ It is evident in the cases of Stelæ E, 19, 13, and I, that the associated altars have inscriptions which are to be regarded only as continuations of the texts on their respective stelæ; and further, that textually considered, they can not be regarded as independent monuments.

⁴ Classes 1 and 2, see p. 125, are not represented in the Middle Period.

⁵ Such differences are not vital, being probably due to the increasing importance and elaboration of the human figure and its attire. As we shall see in the Great Period, the latter finally became so ornate as to crowd the glyph panels off the adjacent faces altogether. (See Stelæ D, M, H, F, and 4.)

A glance at the preceding table at once discloses a very different state of affairs from that found in connection with the stelæ of the Early Period. In the case of the latter all the Initial Series which can be surely deciphered, and probably even all those that can only be approximately determined, with the exception of Stela E, were found to record hotun-endings. In the above table, on the contrary, where all the dates given save one are certain,¹ five of them, or nearly half, do not record hotun-endings or even tun-endings. Here then are a number of *apparent* exceptions to the second generalization which was made in connection with the stelæ of the Early Period, namely, that all the stelæ of that period record hotun-endings. That these exceptions, however, among the Middle Period stelæ, are apparent rather than real, and are due to the presence of Secondary Series which bring their respective Initial Series forward to hotun-endings, has already been explained, but it appears advisable to review these cases in the present connection.

We have seen that not all of the foregoing Initial Series indicate the contemporaneous dates of the monuments upon which they are severally inscribed. In fact, only four of the above twelve stelæ, Nos. 13, 3,² 6, and J, have their contemporaneous dates expressed by their Initial Series. In the other eight cases, the Initial Series record earlier dates, which are brought forward by Secondary Series either on the stelæ themselves or on the associated altars, to their contemporaneous dates, which in every case but one or two (Stela 10 and possibly Stela 5), are also hotun-endings.

Taking up the first group of these apparent exceptions, *i. e.*, those where the hotun-ending is recorded somewhere on the stela itself, it will be remembered that even although the Initial Series of Stelæ 12 and 2 are themselves hotun-endings, viz, 9.10.15.0.0, neither may probably be assigned to this period, but that, on the contrary, both probably date from the following hotun, 9.11.0.0.0, which is recorded as a Period Ending date on each.

Stela 23 presents a similar case. Even although it is impossible to decipher the Initial Series other than as occurring somewhere in Katun 10, the current date of the monument, a hotun-ending is recorded as a Period Ending date elsewhere in the text.

Another slightly different condition is that represented by Stela 1 and probably by Stela 5. Although the Initial Series of Stela 1 is not itself the hotun-ending this monument was erected to commemorate, there is present in the text a Secondary Series leading from the Initial Series terminal date to that hotun-ending. This was also probably the case with Stela 5, although the destruction of the last three glyph-blocks prevents the reading of the final calculations.

Still a third condition is that presented by Stela I and probably by Stelæ 19 and 10 and their associated altars. Although the Initial Series on Stela I

¹ The reading of Stela 5 the writer regards as practically certain, in spite of the fragmentary condition of the original. Stela 23, however, is doubtful, possibly the month coefficient, being 8, might indicate the day was Ahau, but with so many terms wanting it is impossible to go farther with its decipherment.

² In the case of Stela 3, where there are two Initial Series, one records the end of Cycle 9, viz, 9.0.0.0.0, and the other the current hotun-ending and contemporaneous date, 9.11.0.0.0.

is not itself the hotun-ending this monument was erected to commemorate, there is present in the text on the associated altar a Secondary Series leading from the Initial Series terminal date on the stela to the current hotun-ending on the altar. That this same condition probably also obtained on Stela 19 and its altar we have already seen; and since the Initial Series of Stela 10 is only 100 days earlier than a hotun-ending, the same one in fact that Stela 19 was erected to commemorate, and indeed only 40 days earlier than the Initial Series of Stela 19, it is probable that the altar formerly associated with Stela 10, now missing, also had a Secondary Series bringing forward its Initial Series to the current hotun-ending. This latter case is one of the possible exceptions noted above, but in view of the close connection apparent between Stela I and its altar and probably between Stela 19 and its altar, it is likely that the same relation existed between Stela 10 and its now missing altar, in which event it can not be regarded as an exception at all.

The study of the foregoing shows that all the stelæ of the Middle Period, when taken into consideration with their respective altars, are hotun-markers, and we may therefore make this fact the basis for our second generalization:

All stelæ of the Middle Period date from hotun-endings; sometimes these hotun-endings are recorded as the Initial Series terminal dates of the stelæ; sometimes they appear as Period Ending dates on the stelæ, either with or without Secondary Series connecting them with the Initial Series terminal dates; sometimes they even appear as Period Ending dates on the associated altars, either with or without the proper Secondary Series to connect them with the Initial Series terminal dates of their respective stelæ.

The above generalization brings out the important fact that, in at least some cases, the associated altars are the actual hotun-markers. But we have already seen that on two occasions, 9.12.0.0.0 and 9.13.0.0.0, the hotuns were marked by pairs of altars without the erection of accompanying stelæ; at least, stelæ marking these particular hotun-endings have yet to be found. Moreover, these four inscriptions all begin with Initial Series, just like the stelæ.¹

It seems possible, therefore, that, beginning with the Middle Period, altars as well as stelæ were used independently for marking the hotuns, and furthermore, that the functions of the two types, in some cases at least, began to merge.² The only alternative explanation is that the stelæ originally associated with the West Altar of Stela 5 and the altar of Stela 1 on the one hand, and with Altars H' and I' on the other, have disappeared, which the writer does not believe.

¹ This is also true of the East Altar of Stela 5, which probably was originally designed for use with Stela 1.

² This is particularly true at Quirigua (plate 1), where four consecutive hotuns there, from 9.17.10.0.0 to 9.18.5.0.0 inclusive, are marked by low altar-like monuments, the so-called Zoömorphs B, G, O, and P. These are preceded by Stelæ S, H, J, F, D, E, A, and C, marking the hotuns 9.15.15.0.0 to 9.17.5.0.0 inclusive, and are followed by Stelæ I and K and Structure 1, marking the hotuns 9.18.10.0.0 to 9.19.0.0.0 inclusive. It is obvious from the above dates that in spite of their widely differing shapes, being flat and oval instead of long and rectangular, the functions of these four monuments at Quirigua are identical with those of the stelæ there, namely, that of marking the current hotuns, and to all intents and purposes they are to be considered as much hotun-markers as are the stelæ themselves.

Assuming that altars as well as stelæ were used for hotun-markers, we have the following hotun-endings marked in the Middle Period:

Stelæ 12 and 2 (doubtful)	9.10.15.0.0	6 Ahau 13 Mac
Stelæ 12, 2, 10, 19, 23, 13, and 3	9.11. 0.0.0	12 Ahau 8 Ceh
Stela 1 and the East Altar of Stela 5	9.11.15.0.0	4 Ahau 13 Mol
The West Altar of Stela 5 and the altar of Stela 1	9.12. 0.0.0	10 Ahau 8 Yaxkin
Stela I and altar	9.12. 5.0.0	3 Ahau 3 Xul
Stela 6	9.12.10.0.0	9 Ahau 18 Zotz
Altars H' and I'	9.13. 0.0.0	8 Ahau 8 Uo
Stela J	9.13.10.0.0	7 Ahau 3 Cumhu
Stela 5	9.13.15.0.0	13 Ahau 18 Pax, or
	9.14. 0.0.0	6 Ahau 13 Muan

It is apparent from the foregoing that while every katun-ending in the Middle Period is represented by one or more monuments, only two of the five lahuntun-endings and only two or possibly three of the ten first and third hotun-endings are represented by monuments. In other words, it would appear as though efforts were not made to erect monuments on every first and third hotun in the Middle Period or even on every second hotun, namely, every lahuntun, but only on every fourth hotun, namely, every katun.

These gaps in the sequence of the monuments during the Middle Period are shown in the following table:

A	{ 9.10. 5.0.0	7 Ahau 3 Pax
	{ 9.10.10.0.0	13 Ahau 18 Kankin
	{ 9.10.15.0.0	6 Ahau 13 Mac ¹
B	{ 9.11. 5.0.0	5 Ahau 3 Zac
	{ 9.11.10.0.0	11 Ahau 18 Chen
C	9.12.15.0.0	2 Ahau 13 Zip
D	9.13. 5.0.0	1 Ahau 3 Pop
E	9.13.15.0.0	13 Ahau 18 Pax
F	{ 9.14. 5.0.0	12 Ahau 8 Kankin
	{ 9.14.10.0.0	5 Ahau 3 Mac ²
	{ 9.14.15.0.0	11 Ahau 18 Zac ³

It is very doubtful whether any of the three hotuns in Group A, with the possible exception of 9.10.10.0.0, were ever marked by the erection either of stelæ or altars. At the conclusion of this katun in 9.11.0.0.0 no less than 7 stelæ were set up, and the energy going into the making of these, as well as into the construction of other buildings then in course of erection, may explain the observed hiatus at this point in the sequence of the monuments.

Why the two hotuns in the next group, B, and particularly the second, 9.11.10.0.0, should not have been marked is unknown, though here again the next hotun, 9.11.15.0.0, was signaled by the erection of two monuments, a stela and an altar.

After 9.12.5.0.0 (Stela I) there are no first or third hotuns marked in the Middle Period, which probably satisfactorily accounts for the breaks in the

¹ This date is recorded as the Initial Series on Stelæ 12 and 2, it will be remembered, but probably not as their contemporaneous dates.

² This date occurs as a period-ending on Stela F, a monument of the Great Period, but not as its contemporaneous date.

³ This date occurs as a period-ending on Stela 4, a monument of the Great Period, and also as a period-ending on the Hieroglyphic Stairway of Mound 26 (Date 22), but in neither case is it the contemporaneous date of these monuments.

sequence in Groups C, D, E, and F above. After 9.12.5.0.0, on the other hand, all the lahuntun and katun-endings except the last, 9.14.10.0.0, are marked by corresponding monuments.

It is not at all unlikely, in view of the foregoing, that beginning with the construction of the Great Plaza, which began after 9.12.5.0.0 and before 9.13.10.0.0, an undertaking which with the work on the Acropolis then going forward must have absorbed the energies of well-nigh the entire masonic craft of the community, the practice of erecting monuments to mark the ends of first and third hotuns may have been discontinued as too exhaustive a drain on the resources of the tribe in connection with the larger work then in progress; and thereafter monuments may have been erected only on the lahuntun and katun-endings. If such were the case, there is only one period-marker missing after 9.12.5.0.0, namely, 9.14.10.0.0; and possibly for the whole Middle Period not more than three—9.10.10.0.0, 9.11.10.0.0, and 9.14.10.0.0.

Such speculations as these, while incapable of definite proof, are yet interesting as possibly indicating why certain hotuns passed unmarked at Copan; and the writer feels much more inclined to accept this explanation of the facts observed, almost in its entirety, rather than to accept the only other alternative possible, namely, that the stelæ marking these 11 missing hotuns have been utterly destroyed or else still lie buried somewhere in the valley.

Turning next to the consideration of the altars of the Middle Period, enough has been said already to show that in some cases at least their functions are scarcely to be distinguished from those of the stelæ. Indeed, in four cases they seem to have served as hotun-markers, just like stelæ.

Of the twelve altars of the period, six are circular and drum-shaped;¹ four are rectangular,² and two are of complex form.³ The drum-shaped altars enjoyed their greatest vogue in the Middle Period—indeed, with the exception of a small one, Altar W, they do not occur at all in the Great Period.⁴ The highest example of the type is the altar of Stela I, which, in addition to the bands running over the top, has knots and bands on the periphery, both above and below the inscription. The rectangular altars, on the other hand, carry over into the Great Period.

As seven of these twelve altars have been correlated with the stelæ for which they were severally designed, they may be dismissed from further consideration. It will be necessary, however, to examine the remaining five, all of which record Initial Series, in somewhat greater detail. These are:

The West Altar of Stela 5
The Altar of Stela 1
Altar K
Altar H'
Altar I'

¹ The altars of Stelæ 19, 13, 1, and I, and the East and West Altars of Stela 5.

² The altar of Stela 6 and Altars K, H', and I'.

³ The altars of Stelæ J and 3.

⁴ Only one altar of this type has no inscription, namely, Altar 14. It is not associated with any other monument, and its date is therefore uncertain. (See Spinden, 1913, p. 161 and figure 214.) It stands by the river bank and is ornamented with bands and other decorative elements, but has no glyphs on it. It almost certainly may be referred to the Middle Period on stylistic grounds. As already pointed out, the plain drum-shaped stones found in connection with Stelæ 12 and 23 are probably their foundation-stones and not altars.

In the cases of the first two, it has already been shown that they were probably not originally associated with the stelæ with which they are now found; and the remaining three are not now associated with any stelæ.

We have seen that of the stelæ of the Middle Period, only two, Nos. 10 and 5, have no altars which may be correlated with them. Could any of the above five altars, therefore, originally have been associated with either of these stelæ? The writer thinks not. It has been shown that the first two commemorated the katun-ending 9.12.0.0.0 and the last two the katun-ending 9.13.0.0.0, neither of which is recorded either on Stela 10 or Stela 5. Moreover, in the case of Stela 10, there are strong grounds for believing that its associated altar must have presented the Secondary Series 5.0, which would just bring its Initial Series terminal date forward to the nearest hotun-ending. And in the case of Stela 5 there were probably present on the stela itself calculations indicating the hotun-ending it was erected to commemorate, 9.13.15.0.0 or 9.14.0.0.0.

The only altar left, Altar K, could hardly have belonged to either of these stelæ, since it is 35 years later than Stela 10 and 25 years earlier than Stela 5.

In view of the foregoing, it seems improbable that any of the above altars could have been associated with either Stela 10 or Stela 5, and therefore the altars of these two stelæ are now missing.

At the conclusion of the Middle Period the times were ripe for a brilliant cultural florescence, a tremendous outburst of art and architecture. All the necessary factors for such were present in their highest degree. Long familiarity with stone-carving had developed a technique which was soon to halt at nothing—not even sculpture in the round.¹ Inscriptions of a length and beauty, hitherto undreamed, were soon to be executed if not already under way.² Temples surpassing in grandeur and magnificence their noblest achievements in the past were soon to be erected.³ In short, the tribe whose fortunes we are following had at last come into the full enjoyment of its artistic and intellectual inheritance. It was at the threshold of its Golden Age.

¹ Stela B and the human figures on the Hieroglyphic Stairway.

² The Hieroglyphic Stairway on the western side of Mound 26.

³ Temples 11, 22, and 26.

CHAPTER IV.

THE INSCRIPTIONS OF THE GREAT PERIOD.

By the beginning of the Great Period, 9.15.0.0.0, Copan was entering upon the closing century of its occupation. The terraces surrounding the Great Plaza had been completed, and the center of building activity was very soon to shift some 200 meters farther south, where the Hieroglyphic Stairway of Mound 26 already under construction and the magnificent temples surrounding the Eastern and Western Courts of the Acropolis were soon to be completed.

The culture of this tribe or people was at its zenith. Wealth of a concrete kind was doubtless at the disposal of the ruling caste, for only vast accumulations of stored-up capital, in the form of reserves of food, clothing, and implements, as well as a large and skilled artisan class, both the outcome of long-continued and wisely directed prosperity, could have made possible such truly remarkable achievements in architecture and sculpture.

It is necessary, moreover, to assume that living conditions were easy, since it was possible to divert so much activity from the food-quest to purely esthetic pursuits. No warlike subjects, it should be remembered, are portrayed on the stelæ and altars at Copan, and peace must have prevailed most, if not all, of the time.

The surplus energy of a great people under the efficient direction of a highly organized ruling caste, probably priestly, was being applied to the embellishment of their capital. Industry was the order of the day, architectural and artistic supremacy the goal. Thus passed the closing century of the city's occupation; and then came the end. Some time toward the close of Cycle 9 or early in Cycle 10, without any apparent cause, at least one of sufficient importance to be reflected in the sculpture and architecture of the city, the monuments at Copan suddenly stop. Chronology and art, the latter without any intermediate stages of decline or decadence, all at once cease to be, and the city's history becomes a blank.

That some comparatively slow catastrophe, operating for at least a century, and culminating early in Cycle 10, must have overtaken the southern Maya becomes increasingly evident. Everywhere the story is the same—a sudden and final cessation of all dated monuments in the individual cities not later than 10.2.0.0.0, unaccompanied by any of the usual signs of social and political disintegration, but a gradual cessation over the Old Empire region as a whole.¹

¹ See Chapter V, 442-462, for the discussion of this question, and also Morley, 1913a, p. 65; 1915, pp. 3, 4, and 1917a, pp. 144, 145.

It is perhaps too early to offer a conjecture as to the cause of this all-engulfing social catastrophe. A number of hypotheses have been advanced which are reviewed in Chapter V. For the present it is sufficient to note that just before the close of Cycle 9, about 9.18.10.0.0, architectural and sculptural activity ceased at Copan, and shortly afterward the city was probably abandoned, the inhabitants migrating elsewhere.

The monuments of the Great Period, as would naturally be expected, are much more numerous than those from either the Early or Middle Period, or indeed from both combined; more than half of the texts at Copan—45 out of the 89 examined in this monograph—dating from the closing century of the city's occupation, 9.15.0.0.0 to 10.0.0.0.0. These 45, moreover, include only such monuments as have inscriptions, but if all the uninscribed sculptures of the Great Period were included in the above total, this preponderance would be greatly increased.

In the Early and Middle Periods we have seen that the hieroglyphic inscriptions were presented exclusively upon stelæ and altars. In the Great Period, however, in addition to the monuments we will find texts inscribed upon architectural members as well, such as stairways, cornices, wall-panels, and door-jambs, for example.

Steps and even long stairways were favorite media for glyphic treatment here and elsewhere.¹ The Hieroglyphic Stairway on the western slope of Mound 26 (see plate 6), containing upwards of 90 steps and about 2,500 glyphs, is by far the longest text in the Corpus Inscriptionum Mayarum. Other media which present inscriptions are door-jambs, door-lintels, piers, columns, wall-tablets, and cornices. Of these, however, only inscribed door-jambs and possibly a cornice (Fragment Z') have been found at Copan.²

The first sculptures of the Great Period, Stelæ A, B, and D, are found in the Great Plaza. This is the largest court in the city, and was probably completed some time shortly before 9.15.0.0.0. At least, the earliest monuments *in situ* in the Great Plaza, except Stela I, date from that hotun. During the 20 or 25 years after Stela 5 was erected at Group 8 (see plate 3), the terraces surrounding the Great Plaza were probably completed, and shortly before 9.15.0.0.0 the sculptors and stone-masons of the city were again at liberty to devote themselves to the making of stelæ and altars. Their first efforts in this direction were probably Stelæ A and B and their respective altars, with which monuments the Great Period begins.

¹ Hieroglyphic steps have also been found at Quirigua, Structure 1 (Morley, 1913, pp. 352, 353, and drawing, p. 356, and Hewett, 1912, p. 169); Seibal, Mound of Stelæ 5, 6, and 7 (Maler, 1908, p. 20); Naranjo, Structure 16 (Maler, 1908a, pp. 91-93); Yaxchilan, Structure 5 (Maler, 1903, p. 122), and Palenque, Palace Group, House C (Maudslayi, 1889-1902, vol. IV of text p. 16).

² Inscribed wooden lintels have been found at Tikal and inscribed stone lintels at Naranjo, Yaxchilan, Piedras Negras, El Chicomozot, and El Cayo. Hieroglyphic piers, columns, and wall-tablets have been found at Palenque and Holactun, and the writer himself excavated an inscribed cornice at Quirigua. (See plate 1.) The record of inscriptions upon architectural members greatly enriched the effect of Maya façades, and in some cases is directly responsible for their striking appearance.

STELA A.

- Provenance: In the Great Plaza just north of Mound 4, Main Structure. (See plate 6.)
- Date: 9.15.0.0.0 4 Ahau 13 Yax.¹
- Text, (a) photograph: Maudslay 1889-1902, vol. 1, plates 25, 27-29.
 (b) drawing: Spinden, 1913, plate 20, 7 (part only).
 Maudslay, *ibid*, plates 26, 30.
 Morley, 1915, plate 7, b.
 Stephens, 1841, vol. 1, 3 plates after p. 158.
- References: Bowditch, 1910, pp. 101, 126, 127, 182, 183, and tables 29 and 31.
 Galindo, 1834, Appendix XI, p. 598.
 Goodman, 1897, p. 129.
 Gordon, 1896, p. 35.
 Gordon, 1902, p. 171.
 Maudslay, 1889-1902, vol. 1 of text, pp. 36-39.
 Morley, 1915, pp. 169, 170.
 Seler, 1902-1908, vol. 1, pp. 754, 755.
 Spinden, 1913, pp. 158, 159, 162, and table 1.
 Stephens, 1841, vol. 1, p. 158.
 Thomas, 1900, pp. 776, 801.

Stela A stands *in situ* in the Great Plaza at the northern base of Mound 4, facing east (see plate 6), that is, with a side instead of its back next the mound, in which position it would appear not to have been correlated with Mound 4.² The front is sculptured with a human figure of heroic proportions and gorgeous clothing. The back and sides are covered with glyphs, on the basis of which arrangement of the design it may be assigned to Class 4. It is 3.5 meters high, 91 cm. wide, and something less in thickness. Stephens gives it the letter L in his map.³

The Initial Series is presented on the north side, and records the date 9.14.19.8.0 12 Ahau 18 Cumhu very clearly, as follows:

A1	Initial Series introducing glyph
A2a	9 cycles
A2b	14 katuns
A3a	19 tuns
A3b	8 uinals
A4a	0 kins
A4b	12 Ahau
A9b	18 Cumhu

Except for the Supplementary Series, there are no other known glyphs on the north side.

The second glyph on the back or west side, B2a, records the Secondary Series 3.0; and following this in c2 is the date 4 Ahau 18 Muan. All efforts to reach the latter by counting 3.0 forward from the Initial Series terminal date are unavailing; but if this number is counted backward from the Initial Series terminal date, the date reached will be found to be 4 Ahau 18 Muan, as recorded.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² Four of the stelæ in the center of the Great Plaza are arranged in two lines facing each other, Stelæ A and B being directly opposite Stelæ H and F respectively, the two former facing east, the two latter, west. (See plate 6.)

³ Stephens, 1841, vol. 1, map facing p. 133, and p. 158.

9.14.19.8.0	12 Ahau 18 Cumhu
3.0	backward
9.14.19.5.0	4 Ahau 18 Muan

The latter date, 9.14.19.5.0, is just 1 tonalamatl (13 uinals) before the closing date on this monument, and is, moreover, a katun anniversary of another date here at Copan, namely, the second on Stela I, which is exactly 3 katuns earlier:

9.11.19.5.0	10 Ahau 13 Ceh
3. 0.0.0	
9.14.19.5.0	4 Ahau 18 Muan

The record of two dates which are exactly 1 tonalamatl before the ends of katuns in the Long Count might indicate the recurrence of some festival at such times. Perhaps like the last 5 days of the year in northern Yucatan, the closing tonalamatl of each katun was set aside for a particular group of ceremonies.¹ If this were true, the dates 9.11.19.5.0 10 Ahau 13 Ceh on Stela I, and 9.14.19.5.0 4 Ahau 18 Muan here would mark the beginnings of such festivals. At least, the recurrence of such an unusual date as this arrests the attention and may well have had some such corresponding significance.

The count on Stela A is continued in B11b, where a Secondary Series of 10.0 is followed by the date 4 Ahau 13 Yax in c11b, B12a. All efforts, however, to reach this by counting 10.0 either forward or backward from the preceding date 4 Ahau 18 Muan will prove unavailing, but if 10.0 is counted forward from the Initial Series terminal date 12 Ahau 18 Cumhu, the date reached will be found to be 4 Ahau 13 Yax, as recorded:

9.14.19. 8.0	12 Ahau 18 Cumhu
10.0	
9.15. 0. 0.0	4 Ahau 13 Yax

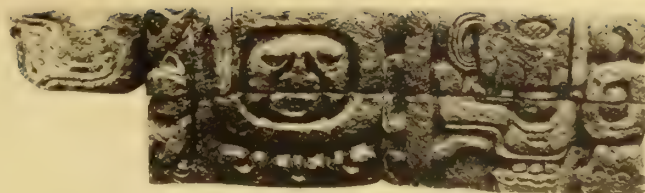
Finally, the record of "End of Katun 15" in B12b, c12a proves that the 4 Ahau 13 Yax in c11b, B12a is in fact 9.15.0.0.0 4 Ahau 13 Yax, and the above calculations are therefore correct.

There follows in c12b the day 12 Ahau and in B13a, 13?, the doubtful glyph, probably being a month-sign. There seems to be no reason, however, for the record of such a Calendar Round date here.

The remaining side (south) has no glyphs of a decipherable nature except D12b, which is the lahuntun ending-sign already referred to. (See pp. 61, 88, 116, 183, 188, 195, 200, and Morley, 1917b, p. 197.)

¹ Says Landa in describing these ceremonies at the end of the year: "

"It has been said in the preceding chapters that the Indians [of Yucatan] commenced their years from these days without name [the last five days of their year July 11-15 inclusive, Old Style, July 21-25 New Style], preparing for them with vigils in order to celebrate the feast of their new year. And besides the preparations which they make for the feast of the demon Uayebab, for which they go out of their houses, the rest of the preparations were to go out of their houses very little in these five days, except to offer the gifts and objects of the general feast to their devils and to the others in their temples. These things which are thus offered, they never take back for their own uses, nor anything which may have been offered to the demon, for whom they buy incense to burn. During these days they do not comb or wash themselves, the men do not remove the vermin from their bodies, and the women do no menial or heavy work, because they fear some evil would result if they did it." (Landa, 1881, pp. 96, 97.)



a. Glyphs in the north gallery of Structure 18.



b. Altar S, front and adjacent side on the right.



c. Altar W, top.





d. Altar G'.



e. Altar F'.



f. Altar Q'.

Attention should be called to the peculiar form of the last glyph of the Supplementary Series in this text at A9a:  This sign has the coefficient 9, one of the only two possible (9 or 10), and stands in the regular position, *i. e.*, immediately preceding the  month-sign. The main part of the glyph, however, is entirely different from the usual forms. (See Morley, 1916, plates 1-10, Glyph A.) So far as the writer knows, this variant occurs as the last glyph of the Supplementary Series in but two other places, on Stela N, also here at Copan, and on Slab 6 of the Hieroglyphic Stairway at Naranjo. On Stela N the coefficient is 10 instead of 9.¹ This same variant but with another superfix appears again on Stela A at c6b. The reason for its use in these three texts and in no other is unknown, but that it is the same as the usual form seems probable from the fact that:

(1) This variant in all three cases is the last glyph of the Supplementary Series, and in two immediately precedes the month-sign; and

(2) In all three cases it has the coefficient 9 or 10, the only ones possible with the last glyph of the Supplementary Series.

A summary of the chronological parts of this text follows:

North side, A1-A4b, A9b	9.14.19. 8.0	12 Ahau 18 Cumhu
West side, B2a	3.0	backward
C2	9.14.19. 5.0	4 Ahau 18 Muan
B11b	10.0	from Initial Series
C11b, B12a	9.15. 0. 0.0	4 Ahau 13 Yax
B12b, C12a	End of Katun 15	
C12b, B13a	12 Ahau 13?	

The possible significance of the second date above has already been explained. The next to last date, 9.15.0.0.0, is the katun-ending this monument was erected to commemorate.

Stela A is the most elaborate monument yet encountered. The carving of the glyphs is well-rounded, giving a finish and softness of outline to the glyph-blocks not encountered in any of the earlier sculptures. There are $13 + 26 + 13 = 52$ glyph-blocks in the entire text.

According to Spinden, there are a few traces of a monolithic altar of undetermined character in front of this monument.²

STELA B.

Provenance:	About the middle of the Great Plaza. Main Structure. (See plate 6.)
Date:	9.15.0.0.0 4 Ahau 13 Yax. ³
Text, (a) photograph:	Maudslay, 1889-1902, vol. 1, plates 33, 35, 36, 38, 39, <i>a</i> .
(b) drawing:	Arnold and Frost, 1909, plate opposite p. 284. Maudslay, <i>ibid</i> , plates 34, 37. Morley, 1915, plate 7, <i>a</i> . Stephens, 1841, vol. 1, 3 plates after p. 156.
References:	Arnold and Frost, 1909, p. 284. Bowditch, 1910, pp. 101, 183, and table 29.

¹ See Morley, 1916, plate 10, Nos. 77 and 80, Glyph A, and p. 370.

² See Spinden, 1913, table 1.

³ For other monuments recording this same hotun-ending, see Appendix VIII.

STELA B—continued.

- References—*cont'd*: Galindo, 1834, Appendix XI, p. 598.
 Goodman, 1897, p. 130.
 Gordon, 1896, p. 35.
 Gordon, 1902, p. 167.
 Maudslay, 1889-1902, vol. 1 of text, pp. 42, 43.
 Morley, 1915, pp. 167-169.
 Seler, 1902-1908, vol. 1, pp. 751, 752.
 Spinden, 1913, pp. 157-159, and table 1.
 Stephens, 1841, vol. 1, p. 156.
 Thomas, 1900, pp. 776, 801.

Stela B stands near the center of the Great Plaza facing east. It is 3.58 meters high and more than a meter wide. The front is sculptured with a human figure of heroic size, whose somewhat Mongoloid cast of countenance has given rise to a flood of ill-considered speculations regarding the possible Asiatic origin of the Maya civilization. One of the more recent supporters of this extravagant hypothesis, long since relegated to the rubbish-pile of scientific discards, is Arnold, who writes concerning this monument as follows:

"Here as pointed out on page 268 are carvings so strikingly Oriental that one can not doubt their origin. The faces of the figures on the stelæ are the faces one can see today in Cambodia and Siam. The dress, the ornamentation, the turban-shaped head-dress (found on no other carvings but these) are all purely ancient Indo-Chinese."¹

Even as sober and restrained a writer as Stephens, who calls this monument N in his map, was led astray by the apparent resemblance of certain decorative elements on this monument to elephant trunks: "The two elements at the top appear like the trunks of an elephant, an animal unknown in that country."²

More recently Elliot Smith has revived this highly improbable identification, finding detailed anatomical similarities between this decorative element on Stela B and the trunk of an elephant. He has been ably answered, however, by Tozzer, Spinden, and Means.³

It is hardly necessary to point out that any attempt which seeks to establish direct cultural connection between the Maya and any old-world civilization, either Egyptian or Mongolian, is quite at variance with the results of modern research in this field. And yet the superficial similarities of the Maya to these civilizations are such as to win for this now-exploded hypothesis new adherents from time to time.

¹ Arnold, 1909, p. 284.

² Stephens, 1841, vol. 1, p. 156. Spinden was the first to point out the true nature of this element, which is the beak of the blue macaw somewhat exaggerated in length.

³ This controversy arose through the publication by Elliot Smith in *Nature* for November 25, 1915 (Smith, 1915-1916, pp. 340, 341), of an article entitled "Pre-Columbian Representations of the Elephant in America," and additions in *Nature* for December 16, 1915 (*ibid.*, p. 425). Tozzer (1916, p. 592), Spinden (1916, pp. 592, 593), and Means (1916, pp. 533, 534) hastened to refute this extraordinary hypothesis, in which the writer believes they were successful; Spinden (*op. cit.*) shows clearly that the element in question is the beak of the blue macaw. Other Elliot Smith contributions to the discussions are, 1915-1916, pp. 593-595, and 1916-1917, pp. 190-195, 241-246.

Returning to the description of Stela B, the back presents a huge grotesque face, the eyes and mouth of which each contain a single glyph-block, making three in all. The center of the forehead is occupied by a human figure (see figure 36) seated cross-legged, which from this time on seems to have been a favorite subject of the Copan sculptors. The one on Stela B is probably the earliest example of the type yet found.¹

Each of the narrow sides of this stela contains a single line of glyph-blocks, 14 on the north side and 13 on the south side, which, with the 3 on the back, make a total of $14 + 13 + 3 = 30$ for the entire text.

This arrangement of the design is new. It is most like Class 4, *i. e.*, a human figure on the front and glyphs on the back and two sides, except that in the case of Stela B the back has a large grotesque face with only three glyph-blocks—one in each eye and one in the mouth—in place of the usual two columns of glyph-blocks. Stela B is, in fact, a transitional type between Classes 4 and 5, more closely resembling the former, however, than the latter, to which, therefore, it has been assigned here.



FIG. 36.—Seated human figure on back of Stela B.

The inscription on the north side opens with an Initial Series introducing glyph at A1 and this is followed by the Initial Series 9.15.0.0.0 4 Ahau 13 Yax in A2-A8:

A1	Initial Series introducing glyph
A2	9 cycles
A3	15 katuns
A4	0 tuns
A5	0 uinals
A6	0 kins
A7	4 Ahau
A8	13 Yax

This reading is perfectly clear and offers no difficulties. The south side has only two glyphs of known meaning: B5, B6, "The End of Katun 15." Several others, however, are of familiar form as B3a, B7, B8, B12, and B13. It should be noted that there is no Supplementary Series on Stela B, the month of the Initial Series terminal date immediately following the day. A summary of the text follows:

North side, A1	9.15.0.0.0	4 Ahau 13 Yax
South side, B5, B6	End of Katun 15	

It is evident from the foregoing that Stelæ A and B both record the same hotun-ending. Stylistically considered, however, Stela B is a little later than Stela A.

¹ Other sculptures showing this figure are: Altars Q, T, S, and L, the step in Temple 11, and two sculptures found on the terrace east of the Great Plaza. The last are now in the Museum of the Normal School at Tegucigalpa. Of a closely related type may be mentioned the figures on Altars L, Q, and R at Quirigua.

Spinden, in describing the latter, states:

"In style the principal figure like Stelæ A and D . . . grotesque face occupies entire back of stela. Head-dress of principal figure a turban . . . feet turned at slightly less than 180°, hence the sculpture later than Stela A."¹

Indeed, some of the carving on Stela B amounts to sculpture in the round, the macaw-beaks mentioned above standing quite free from the body of the monument.

Stelæ A and B were doubtless erected at the same time, although it is quite possible, in fact likely, that the latter, because of its technical superiority, was carved after the former.

Catherwood's drawing of the text on the north side of this monument, made in 1839, is so accurate that it is possible to read the date from it.² When it is taken into consideration that the Maya hieroglyphic writing was a sealed book at the time he visited Copan, and that he knew nothing about the subject-matter of the glyphs he drew, such accuracy is remarkable. It is also possible to read his drawing of the Initial Series on Stela D.³

ALTAR S.

- | | |
|-----------------------|---|
| Provenance: | On the summit of the pyramid (Mound 29, Maudslay's numeration) at the southeast corner of the village plaza (Group 9). (See plate 3 and figure 22, <i>l</i> .) |
| Date: | 9.15.0.0.0 4 Ahau 13 Yax. ⁴ |
| Text, (a) photograph: | plate 24, <i>b</i> . |
| (b) drawing: | Maudslay, 1889-1902, vol. I, plate 94.
Morley, 1915, figure 81. |
| References: | Bowditch, 1910, pp. 95-97, 128, 129, 179, and table 29.
Goodman, 1897, p. 134.
Maudslay, 1889-1902, vol. I of text, p. 60.
Morley, 1915, pp. 231-233.
Seler, 1902-1908, vol. I, pp. 753, 754.
Spinden, 1913, table I.
Thomas, 1900, pp. 788, 802. |

Altar S was found by Maudslay on the summit of the pyramid at the southeast corner of the plaza of the modern village (Group 9). (See figure 22, *l*.) The Peabody Museum photographs also show that this was its original position. Subsequently it was removed to the cabildo on the west side of the plaza, and it is now in the museum there. It is a rectangular block of stone about 1 meter long, 76 cm. wide, and 38 cm. high. The top is sculptured with a seated human figure holding some object in its extended right hand, the four sides being covered with glyphs, three glyph-blocks on each of the long sides and two on each of the short sides, a total of 10 for the entire text.

The Initial Series commences on one of the long sides and is concluded on the adjacent side to the right. (See plate 24, *b*.) The date recorded is very clearly 9.15.0.0.0 4 Ahau 13 Yax, as shown at top of next page.

¹ See Spinden, 1913, table I.

² Stephens, 1841, vol. I, last plate between pp. 156 and 157.

³ *Ibid.*, plate facing p. 153.

⁴ For other monuments recording this same hotun-ending, see Appendix VIII.

A	Initial Series introducing glyph
B	9 cycles
Ca	15 katuns
cb	0 tuns
Da	0 uinals
Db	0 kins
Ea	4 Ahau
Eb	13 Yax

Maudslay's drawing of the katun coefficient (1889-1902, vol. I, plate 94, *b*, *ca* u. h.) incorrectly shows 13. The original, however, is perfectly clear, and shows that it is composed of three bars, *i. e.*, 15. (See plate 24, *b*.)

Passing around to the next side, there is found at *Ga*, 5 katuns, and at *H* the date 7 Ahau 18 Zip. If 5 katuns are counted forward from 9.15.0.0.0 4 Ahau 13 Yax, the date reached will be 10.0.0.0.0 7 Ahau 18 Zip; and the "End of Cycle 10" is in fact recorded at *1a*, the first glyph on the remaining side. The last three glyphs are unknown, except that *ja* l. h. may be the sign for the planet Venus. A summary of this short text is given below:

A-E	9.15.0.0.0	4 Ahau 13 Yax
<i>Ga</i>	5.0.0.0	
<i>H</i>	10. 0.0.0.0	7 Ahau 18 Zip
<i>1a</i>	End of Cycle 10	

We have here two dates nearly 100 years apart, and the important question at once arises, which indicates the time this altar was made? Which of the two was its contemporaneous date?

In general, when two or more dates are found on the same monument, the latest corresponds with the date of erection, that is, the latest is the "contemporaneous date." When there is only one hotun-ending on a monument, it is invariably the date upon which the monument was erected or dedicated. The writer knows of no exceptions to this rule. Many monuments of this latter kind, however, begin with other dates which are earlier than the hotun-endings they commemorate. Take, for example, Stela 36, at Piedras Negras, the Initial Series of which is 9.10.6.5.9 8 Muluc 2 Yaxkin, while its final date is 9.11.15.0.0 4 Ahau 13 Mol, a hotun-ending 28 years later. Another case in point is that of Stela E at Quirigua, the Initial Series on the west side of which is 9.14.13.4.17 12 Caban 5 Kayab, while its final date is 9.17.0.0.0 13 Ahau 18 Cumhu, a hotun-ending 46 years later.

In texts of this character, the final date, if a hotun-ending, is invariably the contemporaneous date of the monument. The case is somewhat different, however, when more than one hotun-ending is recorded upon the same monument, as here, and it is necessary to examine this condition further.

Other monuments of this kind, besides Altar S, are: Stelæ J and 8 here at Copan, Zoömorph G at Quirigua, and Altar 1 and Stelæ 4 and 7 at Piedras Negras. The full discussion of these monuments would carry us too far afield to attempt here, but the conclusion to which they point may be briefly stated as follows: The *earlier* rather than the *later* hotun-ending in such cases is invariably the contemporaneous date, and the *later* one was

usually "future time" when it was recorded. In a sense, the closing dates on these seven monuments are prophetic, that is, they probably represent priestly calculations, which dealt with the future, even at the time they were recorded.

It is to be noted further that the later hotun-endings in these cases are invariably of unusual importance. For example, the closing dates on Altar S and Stelæ 8 and J at Copan, Zoömorph G at Quirigua, and Altar 1 at Piedras Negras all record "The End of Cycle 10." We shall see later that katun-endings were commemorated more elaborately than other hotun-endings; and the end of Cycle 9, *i. e.*, 10.0.0.0.0 7 Ahau 18 Zip, the period which had witnessed the first great development and cultural florescence of the Maya, must have been a date of unusual importance to which all were looking forward, especially the priestly astronomers in whose hands lay the reckoning of time. For this reason it is not surprising that the "End of Cycle 10" was recorded more than once before it had actually come to pass.¹

A particularly appropriate time for doing this was in 9.15.0.0.0, the date of the Initial Series of Altar S, at which moment the current cycle (Cycle 9) was then exactly three-quarters over, and the beginning of Cycle 10 just a quarter of a cycle off.

The Initial Series of Stelæ 4 and 7 at Piedras Negras record lahuntun-endings, Stela 4 having the date 9.13.10.0.0 7 Ahau 3 Cumhu and Stela 7 the date 9.14.10.0.0 5 Ahau 3 Mac. In both these cases, however, 10 additional tuns are recorded after the Initial Series terminal dates, and these are followed by the dates which end the next katuns, *i. e.*, 6 Ahau 13 Muan End of Katun 14 in the first case, and 4 Ahau 13 Yax End of Katun 15 in the second case.


If the final date is to be regarded as the contemporaneous date of each stela, there will then be *two* monuments at Piedras Negras (Stelæ 4 and 3) commemorating the katun-ending 9.14.0.0.0, and *two* (Stelæ 7 and 11) commemorating the katun-ending 9.15.0.0.0, but *none* commemorating the lahuntun-endings 9.13.10.0.0 and 9.14.10.0.0, the Initial Series dates of these two stelæ. The improbability of this is apparent at a glance, and it seems perfectly safe to assume that the earlier hotun-ending on each stela was the contemporaneous one and that the final one was simply a calculation of the priests to show how far off the nearest katun-ending was at that time. The final dates on all these monuments are doubtless prophetic, in that they still lay in the lap of the gods when they were recorded.



In the case of Altar S, the particular monument which provoked the above digression, stylistic evidence, moreover, is not lacking to support the conclusions reached on chronologic grounds. Spinden places this altar in the same group with Stela B, the date of which, as we have already seen, is also 9.15.0.0.0.








¹ Cycle 10 is also recorded as a Period Ending date on Stela 11 at Seibal, although the contemporaneous date of that monument is one katun later, *i. e.*, 10.1.0.0.0. (See Maler, 1908, plate 9, glyphs E2, F2a.)





"Altar S bears same date as Stela B—only glyphs—carving of glyphs shows much the same progress as carving of human figure—block-like quality becomes less evident—sharp edges rounded, and modelling apparent."¹

In view of all the evidence presented, it seems highly probable that Altar S was erected not at the later hotun-ending recorded upon it, but at the earlier one, that is at 9.15.0.0.0 4 Ahau 13 Yax instead of 10.0.0.0.0 7 Ahau 18 Zip,² and, indeed, that originally it may have been associated with Stela A or B at the Main Structure.

It will be seen from the summary of this inscription on page 227 that out of a total of 18 glyphs³ the meanings of 11 are completely known (B, ca, cb, da, db, ea, eb, ga, ha, hb, and ia) and the function of one other, *i. e.*, the Initial Series introducing glyph (A), is clearly understood. This leaves only six, or 33.3 per cent, of the text undeciphered. Three of the undetermined glyphs (fa, gb, and jb) have the familiar ending superfix , also seen above ia, the glyph recording "End of Cycle 10." It seems probable from these glyphs, therefore, that other and still unknown Maya time-periods also came to an end on one or other of the two dates recorded on this altar.

The first glyph showing this ending-sign superfix, fa,  follows immediately after the Initial Series terminal date; and it is not at all unlikely that some unknown time-period, whose sign is expressed  by fa, came to an end on the date 9.15.0.0.0 4 Ahau 13 Yax. The prefix of fa is also another ending-sign and the element between the superfixial ending-sign and the main glyph is a familiar form for 0. The record of two ending signs and 0 in the same glyph strongly suggests that such a sign designates the end of some time-period.

The next glyph with this ending-sign superfix is gb  standing between the "5 katuns" and the date "7 Ahau 18 Zip". This  may indicate that some time-period expressed by gb is contained an even number of times in five katuns; that is, it came to an end in this period. gb is apparently the day-sign Imix  with the day-sign Ahau  appearing in place of its central element. These two days  are the first and last of all Maya  time-periods, Ahau being  the closing day and Imix the starting day of all known periods greater than the kin. If 7 Ahau 18 Zip closed Cycle 10, as we have seen, then 8 Imix 19 Zip began the following cycle. gb may therefore be a general glyph indicating the end of one time period and the beginning of another.

The last ending-sign appears at jb, , where it is attached to a composite glyph, the main element of which  also appears in the next  (Glyph B). The subfix is 

¹ See Spinden, 1913, table 1.

² This conclusion applies to the other six monuments of this group, with the possible exception of Altar 1 at Piedras Negras, which opens with a cycle-ending, more than 5,000 years before the beginning of Cycle 9, that is before the beginning of the historic period, and proceeds to the End of Cycle 10; or from the very remote past, through the present, into the nearer future.

³ The first two glyph-blocks have only one glyph each—the Initial Series introducing glyph and the cycle-sign and coefficient; but all the others have two glyphs each, which make a total of 18 instead of 20 for the entire text






also frequently seen in month-signs, though in such cases it does not appear to alter the value either of the month-sign or its coefficient.

It seems not improbable from the foregoing that several time-periods may have come to an end on one or other of these two dates and that Altar S was made to record this fact.

That Altar S is very closely connected with Stelæ A and B, both of which record the same date (9.15.0.0.0), is also proved by the fact that practically all of the 6 undeciphered glyphs on Altar S also appear in one form or another, either on Stela A or B, and sometimes on both, viz:

ALTAR S.	STELA A.	STELA B.
<i>Fa</i>		A9, A11, A13a
<i>Fb</i> u. h.	D2 <i>b</i> , D3 <i>b</i> , D4 <i>a</i> , D7 <i>a</i>	A10, A13 <i>b</i> , B2 <i>b</i> u. h.
<i>Fb</i> l. h.		A12
<i>Cb</i>	A12 <i>b</i> , B6 <i>b</i> , C7 <i>a</i> , C10 <i>b</i> , D2 <i>a</i> , D19 <i>a</i> , D11 <i>a</i>	
<i>Ib</i>	A9 (superfix only)	
<i>Jb</i>	A8 <i>b</i> (one element only)	

In some cases the main elements of the above glyphs are modified by different subordinate elements, but in general fairly close similarities exist. The text on Altar S as it now stands is two-thirds deciphered, and it seems unlikely that the remaining six glyphs can greatly change the general meaning of this monument, for which the writer suggests the following paraphrase:

"It is now 9.15.0.0.0 4 Ahau 13 Yax, and the time-period *x*, *i. e.*,  has come to an end. In another 5 katuns, which is a quarter of a cycle, on the date 7 Ahau 18 Zip, Cycle 10  will come to its end,  and on  the next day a new cycle will begin: the period *y*, *i. e.*,  also ends on this latter date."

There would seem to be little room for the record of historical events here, and indeed the most we could hope for would be some brief notice of conquest, famine, pestilence, or possibly the accession of some ruler.¹

From the foregoing analysis of this text the writer believes this altar was made in 9.15.0.0.0 possibly to commemorate the fact that the current cycle was then three-quarters over and that in another quarter of a cycle it would end, this part of the record being in a sense prophetic. Occasion was also taken at the same time to point out that another time-period had come to an end on the former date; and finally that Altar S itself may have been correlated originally either with Stela A or Stela B at the Main Structure.

STELA D.

Provenance:	At the southern base of, and correlated with, Mound 2 on the northern side of the Great Plaza, Main Structure. (See plate 6.)
Date:	9.15.5.0.0 10 Ahau 8 Chen. ²
Text, (a) photograph:	Gordon, 1896, plate 6, figure 1. Maudslay, 1889-1902, vol. 1, plates 43, 44, 47. Spinden, 1913, plate 20, 8 (part only).

¹ See Chapter I, p. 36.

² For other monuments recording this same hotun-ending, see Appendix VIII.

STELA D—continued.

- Text, (*b*) drawing: Catherwood, 1844, plate 5.
 Maudslay, *ibid*, plates 45, 46, 48.
 Morley, 1915, plate 14.
 Stephens, 1841, vol. 1, 2 plates, facing p. 153.
 Thomas, 1904, plates 76, 77.
- References: Bowditch, 1910, pp. 169, 170, and table 29.
 Galindo, 1834, Appendix XI, p. 598.
 Goodman, 1897, p. 130.
 Gordon, 1896, pp. 24, 35.
 Gordon, 1902, pp. 171, 174.
 Maudslay, 1889-1902, vol. 1 of text, pp. 45-47.
 Morley, 1915, pp. 188-191.
 Seler, 1902-1908, vol. 1, pp. 768-771.
 Spinden, 1913, pp. 159, 161, and table 1.
 Stephens, 1841, vol. 1, pp. 153, 154.
 Thomas, 1900, pp. 778, 801.
 Thomas, 1904, pp. 221-223.

Stela D stands in front of the southern base of Mound 2, with which it is correlated, at the north side of the Great Plaza. It is about 3.66 meters high and 1.08 meters wide. Stephens gives it the name of Statue P on his map.¹ The front (south side) shows a large human figure with a mask on its face, holes being cut for the forehead, eyes, and mouth. The drapery and costume of this figure extend around and completely cover the two sides. The back is sculptured with two parallel columns of glyph-blocks, 16 in all, and on the basis of this arrangement, encountered here for the first time, it is necessary to create a new class for this stela, namely, Class 6.

This inscription is one of the most remarkable texts in the entire Corpus Inscriptionum Mayarum. This distinction is due to the fact that its glyphs are expressed by full-figure forms; that is, instead of the heads only, the whole bodies of human, animal, and bird forms are employed.² This is the first text of its kind thus far encountered, and the first occurrence of any full-figure glyphs, with the single exception of the uinal-signs in the Initial Series of Stelæ 24, 15, 12, and 2, yet found.

Texts of this character are exceedingly rare. So far as the writer knows there are only five full-figure Initial Series now known in the Maya Corpus:

- (1) Stela D, Copan.
- (2) Date 24, Hieroglyphic Stairway, Copan.³
- (3) Stela D East side, Quirigua.
- (4) Stela D West side, Quirigua.
- (5) Zoömorph B, Quirigua.

Full-figure glyphs also occur sporadically in a few other inscriptions here at Copan, as the uinal-signs on Stelæ 24, 15, 2, and 12, already noted, and on Altars D' and W'.

¹ Stephens, 1841, vol. 1, map facing p. 133, and p. 153.

² For a description of full-figure glyphs, see Morley, 1915, pp. 67, 68.

³ Gordon (1902, p. 184) notes the possibility that there may have been another full-figure Initial Series on the Hieroglyphic Stairway. An examination of the blocks thus identified leads the writer to the same conclusion (see p. 277), or more probably that this second full-figure Initial Series came from the temple on top of Mound 26. It is not included above, as being too doubtful.

The present text opens with the Initial Series introducing glyph in A1. The variable element, instead of being a head, is a complete human figure, the lower parts of which, however, are concealed by the tun-sign. The pair of comb-like lateral appendages is replaced by a pair of fishes, which, the writer has suggested elsewhere, may have been the original form from which this element was derived.¹ The moon-sign appears just behind the human figure.

The Initial Series is recorded in B1-A4, A5. The cycle-sign is a parrot with the clasped hand, the cycle characteristic, as its lower jaw. This parrot is bound to the back of a human figure. The head of the latter shows the familiar dots of the number 9 on its cheek and a beard on its chin,² and the whole glyph-block unmistakably records "9 cycles." The next glyph-block, A2, shows two figures, one human, the other bird-like, grappling with each other. The former, according to Bowditch, is an eagle.³ The head of the human figure has the familiar tun head-dress of the head for 5 and the fleshless lower jaw of the head for 10. The position of this glyph-block between the cycle in B2 and the tun in B3 is such as to indicate that it is the katun-sign and that "15 katuns" are recorded here.

The tun and its coefficient appear in B2. The former is again a bird, the fleshless lower jaw of which indicates that it is the tun-sign. The latter is a human figure with the same kind of a head as the katun coefficient, except that the fleshless lower jaw is lacking. There is little difficulty in deciphering B2 as "5 tuns." The uinal-sign in A3b is quite clearly a frog, the left arm of which is linked with the left arm of a human figure. The head of the latter has a hand across the lower part of the face, and the whole glyph-block therefore reads "0 uinals."

The kin-sign and coefficient appear in B3. The former is a human figure with a grotesque head, the latter a human figure with a hand across the lower face, giving "0 kins" for the glyph-block.

The day of the Initial Series terminal date appears in A4. The day-sign is Ahau, here represented by a full human figure crouching in the day-sign cartouche, around the left side of which another human figure has its left arm linked. The head of this latter has a fleshless lower jaw and a truncated nose, both characteristics of the head for 10. The whole glyph-block therefore reads "10 Ahau."

¹ Morley, 1915, pp. 28 and 69. See also Stela C, p. 346.

² Although the dots on the lower cheek are the essential characteristic of the head numeral for 9, the beard is also a fairly constant feature.

³ Bowditch (1910, p. 113) makes the following timely suggestions concerning the period glyphs of this text: "It is to be noted that Nos. 35-37 of the uinal forms represent the frog *Uo*. The phonetic similarity of this word with *Uinal* or *U*, meaning moon, is noticeable. It is possible that the parrot's head No. 30 of the cycle forms [B1b here] and the eagle's head No. 27 of the katun forms [A2b here] may have some relation in their phonetic values to the Maya names for these periods."

The writer believes this point can not be too strongly emphasized. It seems likely that we have in this text the original forms of the period glyphs, which in later times, by a process of conventionalization, were reduced to simpler elements. Thus, as noted above in the Initial Series introducing glyph, the fin or tail of the fish (the comb-like lateral appendages) later replaced the whole fish. In the case of the cycle-sign, the head of the parrot later replaced the whole bird, etc. When the study of the Maya hieroglyphic writing reaches the point where its origin can be safely sought, the writer agrees with Bowditch that the full-figure glyphs of this text will be found to shed much light on the original forms from which the glyphs were derived.

The month-sign and coefficient are at A5. The latter is a human figure with the head for the number 8, and the former is a large, grotesque head without body, to which the characteristics of the month Chen have been applied.

Assembling the foregoing values, it will be found that the Initial Series 9.15.5.0.0 10 Ahau 8 Chen is recorded here as follows:

A1	Initial Series introducing glyph
B1	9 cycles
A2	15 katuns
B2	5 tuns
A3	0 uinals
B3	0 kins
A4	10 Ahau
A5	8 Chen

The glyph standing between the day and month of the Initial Series terminal date, B4, is the first glyph of the Supplementary Series, Glyph G, and it is extremely probable that other glyphs of the Supplementary Series appear at B5 and A6. At B7b is the Zotz sign, which is found in many texts but is of unknown meaning.

At A7 there is a large spherical inclusion of harder volcanic material which seems to have defied all efforts of the ancient sculptors to carve it in conformity with the requirements of the design of this glyph-block. The most they were able to accomplish in this direction was to reduce its surface until it was approximately flush with the face of the monument.¹ They were more successful, however, in removing a similar inclusion which originally was embedded between A3 and B3. They not only succeeded in removing this altogether, but also carved the concave sides of the resulting depression with the details of the uinal and kin glyphs.


After the erection of Stela D, the center of building activity seems to have shifted from the Great Plaza to the Court of the Hieroglyphic Stairway (plate 6) where for the next katun practically all the sculptural energies of the city seem to have been focused. Owens's grave is just south and in front of this stela. (See Chapter I, p. 25, note 6.)



HIEROGLYPHIC STEPS, SOUTH SIDE MOUND 2.

Provenance:	On the southern slope of Mound 2 at the Main Structure, facing Stela D. (See plate 6.)
Date:	(Upper step) 9.14.16.11.8 1 Lamat 16 Zotz (?) (Lower step) 9.15.17. 0.0 1 Ahau 8 Xul (?)
Text, (a) photograph:	Gordon, 1896, plate 6, figure 1.
(b) drawing:	plate 26, g.
References:	Gordon, 1896, p. 24. Spinden, 1913, table 1.

Before passing to the consideration of the Hieroglyphic Stairway of Mound 26, it is first necessary to describe a short inscription which was probably engraved during the building of that more important construction. At the north side of the Great Plaza on the southern slope of Mound 2 there are two steps of unequal length, the risers of which are sculptured with

¹ A description of this inclusion as well as of the material of the body of this stela will be found in Appendix I.

glyphs. The upper and shorter one of the two is 1.52 meters long and 30 cm. high and is the more effaced. It has two parallel rows of 11 glyph-blocks each, or 22 for the entire step. The seventh and eighth glyph-blocks in the lower band, G2, H2, record the following Calendar Round date:  The day coefficient is surely either 1, 2, or 3, and since the lower dot is probably ornamental, 1 appears to be the best reading. The day-sign closely resembles the day-sign in glyph 27 on the east side of Stela J; indeed the two appear identical. But Glyph 27 on Stela J was proved by calculation to be Lamat; moreover, this same variant for Lamat has been found elsewhere; and we may therefore accept this value for it here. This makes the date recorded in G2, H2 probably 1 Lamat 16 Zotz; although 2 and 3 Lamat 16 Zotz are possibilities. Before attempting to fix this date in the Long Count, let us first examine the inscription on the lower step. The latter is not only longer but also shows an entirely different arrangement of glyphs. It is 1.78 meters long and 25 cm. high, and instead of having two horizontal rows there is only one, and instead of 22 glyph-blocks there are only 8.

The first glyph, L, although partially effaced, is clearly the Initial Series introducing glyph. This is followed in Mb, N not by an Initial Series number, but by a Calendar Round date:  It is apparent at the outset that we have here a very unusual condition, namely, an Initial Series introducing  glyph, not followed by a corresponding Initial Series number. Mb is clearly a day-sign (note the day-sign cartouche and tripod support), and a close examination shows that it is the grotesque head variant of the day Ahau.¹ The month-sign is at Nb and is clearly Xul, both the wing subfix and small-eyed animal-head, characteristic of this month-sign, being unmistakable. Since the day-sign is Ahau, the coefficient of the month-sign must be either 3, 8, 13, or 18. Na appears to be either 3 or 8, that is, there is no fleshless lower jaw, and the last two values, 13 and 18, are therefore out of the question.

The day-sign coefficient is either to the left of the day-sign, in which case it is the bird head in Ma, and in that event is best as 13; or it is above, in which case it is either 1, 2, or 3, with by far the best reading at 1. That it is to be found in the latter position seems probable for the following reason: The bird-like head in Ma very closely resembles the head-variant for the katun-sign, the hook-like nose and the mouth-curl, both especially characteristic of the katun-sign, being present.² Above this head there is room for a rather high coefficient, probably above 10 but below 16.


For these three glyph-blocks, the writer suggests the following reading: Initial Series introducing glyph, Katun 11, 12, 13, 14 or 15, 1, 2, or 3 Ahau 3 or 8 Xul.

Assuming that the end of some even tun of one of these five katuns is recorded here, it will be found by referring to Goodman's tables that the

¹ For different forms of the day Ahau, see Bowditch, 1910, plate 6; Morley, 1915, figure 16, e'-k'; and Appendix X.

² See Bowditch, 1910, plate 12, particularly Nos. 2, 4-10, and 16-20.

only tuns which fulfill the above conditions are 9.12.5.0.0 3 Ahau 3 Xul and 9.15.17.0.0 1 Ahau 8 Xul. Since the latter is within 12 years of the date on Stela D, and since the former is 60 years earlier, the writer accepts the latter as the best reading of this date, in spite of the fact that the other possibility is a hotun-ending as well.

Several points about M, moreover, support this reading. In the first place, there is room only for three bars, or two bars and one row of dots, above the katun head, and from what remains, it seems probable that the upper element was a bar rather than one or more dots. This would make *ma* read "Katun 15." The day-sign coefficient (upper part of *mb*) was placed provisionally at 1, 2, or 3. A close study, however, seems to show that the left and right hand dots are ornamental:  and that only the central dot is numerical. If this is so, the day coefficient is 1, which would agree with the above reading.

It seems that we have recorded here, but in a very irregular fashion, the following date: Initial Series introducing glyph, Katun 15 1 Ahau 8 Xul (9.15.17.0.0), in which the date 1 Ahau 8 Xul is not to be regarded as *ending* Katun 15, the period actually recorded, but as occurring some time in the following katun, *i. e.*, in the katun-ending in 9.16.0.0.0.

Unusual as such a procedure is, an exact parallel is found on Altar Q, also here at Copan. At c6 in this latter text is recorded "Katun 17" and immediately following, in D6, E1, the date 6 Ahau 13 Kayab. Ordinarily it would be assumed that Katun 17 ended on the date 6 Ahau 13 Kayab, but referring to Goodman's tables, this date is found to have been 9.17.5.0.0 or the hotun-ending after Katun 17. The procedure is identical in both cases. First is recorded the number of the preceding katun, 15 in one case and 17 in the other, and following in each case is the terminal date of a tun in the next succeeding katun, Tun 17 here and Tun 5 on Altar Q.

It is to be noted, moreover, that neither of the katun-signs in these two texts has an ending prefix or superfix. This, however, is corroboratory rather than otherwise, since the *ends* of these katuns are *not* recorded, but instead the ends of subdivisions of the following katuns. It seems probable, therefore, that the bottom step records the date 9.15.17.0.0 1 Ahau 8 Xul. Although the remaining glyph-blocks, o-s, are fairly clear, particularly the last three, q-s, none of their glyphs can be deciphered.

Returning to the Calendar Round date on the upper step, 1, 2, or 3 Lamat 16 Zotz, let us find where these occurred in the Long Count nearest 9.15.17.0.0 1 Ahau 8 Xul. By referring to Goodman's tables these occurrences will be found to have been as follows:

9.14.16.11.8	1 Lamat 16 Zotz
9.16. 5. 0.8	3 Lamat 16 Zotz
9.16.17. 3.8	2 Lamat 16 Zotz

Unfortunately not one of these shows any particularly close relations either with the reading suggested for the date on the lower step, 9.15.17.0.0, or for the date on the associated stela, 9.15.5.0.0.

The second reading above is 1.0.0.8 later than the Initial Series of Stela D, and the third reading is 1.0.3.8 later than the reading suggested for the lower step. On the other hand, the preliminary inspection of the text gives 1 as the best value for the day coefficient in G₂, which gives the first reading above.

These dates well illustrate the uncertainty to which Calendar Round dating gives rise.¹ We are uncertain which one of them is correct, because no corresponding Initial Series number is recorded, nor indeed for the date on the lower step either. Because the date of the associated stela is 9.15.5.0.0, and because a Katun 15 is possibly recorded at *ma*, it is not unlikely that the Calendar Round date in *mb*, N, 1 Ahau 8 Xul, is 9.15.17.0.0 1 Ahau 8 Xul, although even this reading, the surer of the two, is open to doubt.

The choice of 9.14.16.11.8 for the Initial Series number of the Calendar Round date on the upper step, although leaving much to be desired, is perhaps the best compromise that can be effected; at all events, the day coefficient in G₂ looks more like 1 than 2 or 3. Either of the other readings, however, is well within the range of probability.

The fact that the best reading of both the day-sign coefficients is 1 is an additional item of evidence in their favor, since there is always an effort in Maya Secondary Series to return to the same day, though here only the same day coefficient appears to have been repeated.

Another possible explanation for this unsatisfactory inscription is that these sculptured steps were originally designed for use elsewhere and have no relation to each other as they are now assembled. In this connection it will be remembered that each is of different length and height, and each has a different glyph presentation, the upper one having two horizontal rows and the lower but one. The style of carving, however, is similar, and both would appear to have been built into the southern slope of Mound 2 at the same time. Moreover, a niche or break in the northern side of the Great Plaza seems to have been left for the approach to this mound. All things considered, the readings suggested are better than any others available.

A summary of the inscription with relation to Stela D is given below:

Upper Step G ₂ , H ₂	(9.14.16.11. 8)	1 Lamat 16 Zotz
	(8. 6.12)	undeclared
Stela D, A ₁ -A ₄ , A ₅	9.15. 5. 0. 0	10 Ahau 8 Chen
	(12. 0. 0)	undeclared
Lower Step <i>mb</i> , N	(9.15.17. 0. 0)	1 Ahau 8 Xul

It will be seen from the foregoing that the date of Stela D falls between the dates on the upper and lower steps, a not improbable arrangement for the three. Noteworthy features of this text are:

1. That Initial Series introducing glyphs sometimes, though very rarely, were used without accompanying Initial Series numbers. This will be found to be the case in two other monuments of the Great Period here, namely, Stelæ F and C.²

¹ See Morley, 1915, pp. 76, 240-245.

² Stelæ 15, 7, and P are not to be included here, since at least one Initial Series number is recorded upon each of these monuments, the extra Initial Series introducing glyphs in each case being in a sense redundant.

2. That sometimes, though very rarely, a definite katun was recorded, and after it a date not ending that katun, but ending some division of the next katun, a point corroborated by an identical case on Altar Q. (See pp. 327, 328.)
3. The use of the Venus variant of the day-sign Lamat.

THE HIEROGLYPHIC STAIRWAY.

Provenance:	On the western side of Mound 26 of the Acropolis, facing the Court of the Hieroglyphic Stairway, Main Structure. (See plate 6.)
Date:	9.16.5.0.0 8 Ahau 8 Zotz. ¹
Text, (a) photograph:	plates 25 and 27. Gordon 1902, plates 1-18.
(b) drawing:	plates 26 and 27 and figures 37, 38, 39, 40, and 41. Spinden, 1913, plate 20, 3, and 4 (small fragments only). Gordon, 1902, figures 1-9, 11-13, 15, <i>d</i> , 22, and 25. Maudslay, 1889-1902, vol. 1, text-cuts on pp. 30 and 32. ²
References:	Gordon, 1902. Maudslay, 1889-1902, vol. 1 of text, pp. 29-31. Spinden, 1913, pp. 160-162 and table 1. Stephens, 1841, vol. 1, pp. 134-138.

The inscription on the Hieroglyphic Stairway of Mound 26 at Copan is the longest in the Corpus Inscriptionum Mayarum, containing as many as 2,500 individual glyphs, truly encyclopædic as compared with all other known texts.³

The discovery and excavation of this most important construction has been fully described by Gordon in a special monograph,⁴ and beyond a brief word as to its size, character, and present condition, nothing further in the way of general description need be given here.

The Hieroglyphic Stairway, including the broad flanking balustrades on either side, is 10.11 meters wide. Of this space, the balustrades take up 2.13 meters (1.065 meters each) leaving 7.98 meters as the width of the stairway proper. When finally excavated it was found that only 10 complete steps⁵ and parts of 5 others were *in situ* at the bottom of the stairway, all the upper steps having fallen.

Concerning the original number of steps in the stairway, Gordon has estimated, it appears with considerable accuracy, that there must have been about 90.⁶ From the base of the stairway to the summit of Mound 26, measured on the slope, is a distance of 38 meters, and since the 16 steps⁷ now *in situ* measure 7.62 meters on the slope, this would give 80 as the original number of steps in the stairway.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² Maudslay figures on p. 16 a drawing of one of the sides of Altar D', which he at first incorrectly identified as a fragment from the Hieroglyphic Stairway. Subsequently, however (*ibid.*, pp. 68, 69) he gives its true nature and provenance.

³ The next longest inscription is that on the tablet from the Temple of the Inscriptions at Palenque. This contains 617 glyph-blocks, possibly 1,000 different signs.

⁴ Gordon, 1902.

⁵ This does not include the bottom step, which is lower and wider than all the others, and is not inscribed with glyphs. Unless otherwise stated, this plain bottom step is not included in the various totals following.

⁶ Gordon, 1902, p. 161.

⁷ This figure includes the plain bottom step. (Gordon, 1902, p. 159.)

Or again, Mound 26 is now 25.9 meters high, and the steps of its stairway average about 30.5 cm. in height. On this basis it would have required 85 steps of equal height to reach the present top. But Gordon assumes that the height of this mound has been reduced during the course of the centuries, by gradual erosion as well as by landslides on its north and west sides, by about 1.5 meters, in which case the total number of steps would have been 90 or thereabouts.¹

Another line of evidence is that afforded by the so-called "bird symbol," which was a regularly recurring ornament on the balustrades at intervals of every 5 steps. After the stairway had been completely excavated it was found that 30 of these "bird symbols" had been recovered; which, allowing 15 for each side, makes a total of not less than 75 steps (5×15) for the entire stairway.² But in the collapse of such a monumental construction it is highly probable that a few of them, at least 4, or possibly even 6, were destroyed. If so, this would bring the total number of steps up to 85 or 90, approximately the same number reached by the other estimates.

Still a fourth line of evidence gives about the same result. At regular intervals, along the central line of the stairway from top to bottom, were seated human figures of heroic size each built up of several pieces of stone. Only one of these, however, was found *in situ*, all the others having fallen to the bottom when the stairway collapsed. Its feet rest on the tenth step from the bottom and the upper lip of its enormous animal head-dress is about level with the fifteenth step, making the figure equal to 6 steps or 1.83 meters in height. Although only one of these was found *in situ*, parts of four others were recovered during the course of the excavations, and it is certain that originally there were at least five, if not more. If the top of the lowest of these five seated figures, *i. e.*, the only one *in situ*, is on a level with the fifteenth step from the bottom, the top of the fifth figure, assuming equal spacing between all, must have been on a level with the seventy-fifth step; and if one figure was lost or broken when the stairway collapsed, a natural enough occurrence in view of the tremendous mass of masonry which fell, this would add another 15 steps, making a total of 90, as reached in the other estimates. It is not improbable, therefore, that 90 is a close approximation of the original number of steps in the Hieroglyphic Stairway.

Built against the middle of the base is an altar 1.52 meters high, 3.2 meters wide, the top extending forward 2.13 meters, on the level of the tread of the fifth step. Gordon³ suggests that this probably bore the same relation to the seated figures stretching above it as do the altars found in front of the stelæ to their respective stelæ. In its entirety this construction was undoubtedly the most magnificent at Copan, and it probably marks the apogee of aboriginal sculpture on the American continent.

¹ This assumption seems reasonable, in view of the fact that although Maudslay found a number of beveled roof-stones on the slopes of Mound 26, the top itself was so eroded that he could not find even the foundations of the temple to which these had belonged. (See Maudslay, 1889-1902, vol. 1 of text, p. 30.)

² Gordon, 1902, pp. 160, 161.

³ *Ibid.*, pp. 158, 159.

The almost complete destruction of such a masterpiece, therefore, is little short of a calamity, and as the discussion of its inscription proceeds, the irreparability of the resulting loss to students of the Maya hieroglyphic writing will become increasingly apparent.

Garcia de Palacio, writing in 1576, speaks of "a grand stairway descending by a great number of steps to the river."¹ At present there is no stairway at all on the east side of the Acropolis (see plate 6), nor any traces of the former existence of one. Indeed, there is no other stairway at the Main Structure which corresponds to Garcia de Palacio's "grand stairway descending by a great number of steps" so well as the Hieroglyphic Stairway on the west slope of Mound 26. Therefore, in spite of the fact that he incorrectly locates it on the east slope of some mound—and presumably Mound 26, since in this position it would lead to the river—it is not improbable that in the above quotation he may have referred to the Hieroglyphic Stairway on the west side of this mound instead. If so, it was intact in his day (1576).²

The landslide which caused the destruction of the Hieroglyphic Stairway, however, must have taken place prior to the visits of Galindo and Stephens in 1834 and 1839 respectively, since neither makes any mention of a stairway here, although the latter describes several adjacent monuments, notably Stela M and its altar, and Stela N. On the contrary, Stephens draws a picture of extreme desolation and ruin in this particular part of the city:

"The whole quadrangle is over-grown with trees, and interspersed with fragments of fine sculptures, *particularly on the east side*, and on the northeast corner is a narrow passage [the passageway between Mounds 9 and 10, plate 6], which was probably a third gateway."³

Stephens was far too careful an observer to have overlooked the Hieroglyphic Stairway had it been intact in his time, particularly since he describes and figures the monument (Stela M) and altar correlated with its base. On the other hand, had this landslide been of very recent occurrence, perhaps within a decade or two, he certainly would have noted the destruction wrought as recent. We may therefore conclude that the landslide which destroyed the Hieroglyphic Stairway occurred considerably prior to his visit in 1839. There exists indirect and rather unsatisfactory testimony bearing on this point from another source. In 1854, Scherzer, the German traveler, was deterred from visiting Copan because he was told by the priest at Santa Rosa Copan, the capital of the Department in which the ruins are located, that "a recent landslip had much injured the effect of these ruins."⁴

The only landslide which has "much injured" the appearance of the ruins, so far as can be judged to-day, is the one which destroyed the Hiero-

¹ See Appendix IV, p. 542.

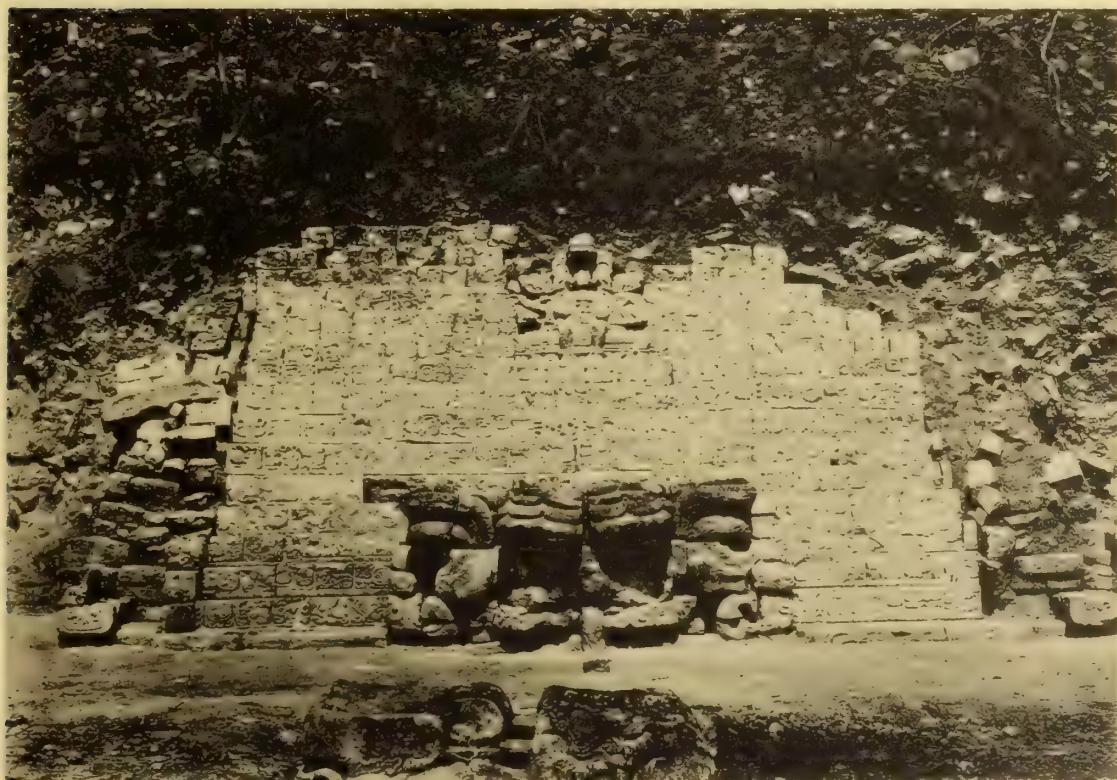
² The "beautiful and rich flight of steps...of hewn stone exquisitely wrought," described by Fuentes y Guzmán, 113 years later (*i. e.*, in 1689, see Appendix V, p. 547) is probably the Jaguar Stairway on the west side of the Eastern Court, first because he says it has 10 or 12 steps, about the number in the Jaguar Stairway, and second because nearby was "a portico of excellent architecture, which is like the entrance of some palace. On the sides are two perfect figures of men dressed in the Spanish fashion;" in which description we can hardly fail to identify Temple 22 on the north side of the Eastern Court. See p. 316.

³ Stephens, 1841, vol. I, p. 138.

⁴ Scherzer, 1857, vol. II, p. 95.



a. The Hieroglyphic Stairway on the west side of Mound 26 before excavation.



b. A nearer view of the same after excavation.

Courtesy of the Peabody Museum.

line *ab* represents the western slope of Mound 26 as found by Owens in 1892; *cd*, the original position of the stairway; and *fg* the 15 consecutive steps on the surface of the slope, which were mistaken for the original stairway at the outset of the work. These, however, were not *in situ*, as the excavation proved, but had slid down from some position nearer the top of the stairway, designated in figure 37 as *xy*.

There is left, then, of the original stairway, as a result of this landslide, two sections of 15 consecutive steps each,¹ *ce* and *fg* (*i. e.*, *xy*), figure 37, and two other sections of unknown lengths, *ex* and *yd*, which have fallen to the bottom and are hopelessly confused. The fragments of these were carefully removed by the Fourth Peabody Museum Expedition from the débris at the base of the stairway and were laid in the court, where they may be seen to-day in indescribable and, the writer fears, inextricable confusion, the wreckage of America's greatest aboriginal effort in the science of writing.

The fifteen consecutive steps not *in situ* but in sequence (see *fg*, figure 37) were carefully removed block by block and reassembled in the court below in their relative positions.² These, together with the 12 or 15 *in situ*, are reproduced in plates 5 and 6 of Gordon's monograph on the Hieroglyphic Stairway. In plates 12 and 13 some of the disconnected fragments are shown, although these are a very small fraction indeed of the rest of this inscription. It is apparent from the foregoing that we have preserved in its original order only about one-third of the inscription, *i. e.*, 30 out of 90 steps, and even these are not all consecutive, as we have seen, half coming from the bottom of the stairway and half from some unknown position higher up. Since, from the very nature of the case, the lowest steps were built first, and moreover, since they are the only ones now *in situ*, this section will be described first.

DATE 1.³

The first three steps (Gordon, 1902, plate 6, A, B, and C) show no decipherable glyphs, but the fourth (D) opens with an Initial Series introducing glyph at A.⁴ (See plate 26, *b.*) Then follows in B-D, 1b the Initial Series 9.5.19.3.0 8 Ahau 3 Zotz:

A	Initial Series introducing glyph
Ba	9 cycles
Bb	5 katuns
ca	19 tuns
cb	3 uinals
da	0 kins
db	8 Ahau ⁵
1b	3 Zotz

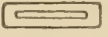
¹ Gordon reproduces only 12 steps *in situ* (Gordon, 1902, plate 6) as against the 15 of which he speaks on p. 157, making a total of 27 instead of 30 consecutive steps. This is doubtless due to the fact that the three top steps found *in situ*, the thirteenth, fourteenth, and fifteenth from the bottom, not counting the plain bottom step, were so fragmentary that it was not thought worth while to publish them.

² Gordon, 1902, p. 157.

³ Gordon also calls this Date 1 in his monograph on the stairway. (Gordon, 1902, p. 169.)

⁴ Since each step is given a different letter, no vertical numerations of the glyph-blocks, as A1, B1, C1, etc., is necessary, and such numbers will therefore be omitted.


⁵ The kins and day of this date are here recorded on the same block of stone. At the two ends, *i. e.*, before the kin-sign and after the day-sign, are two unsculptured bars from 5 to 6 cm. wide. It would almost appear as though these ends had never been finished.

For the most part these glyphs are clear and require no comment. The bar in both the cycle and katun coefficients has an interior decoration, thus, ; and care should be taken not to mistake it for two bars instead of one. The uinal coefficient is either 1, 2, or 3, with by far the best reading at 3. The kin coefficient looks like 0, and as the day-sign is clearly Ahau, it can be nothing else. Even assuming that the uinal coefficient were either 1 or 2, this date can only be 20 or 40 days earlier at the outside. Our preliminary inspection of the Initial Series number, therefore, limits us to three possible readings, the extremes within 40 days of each other:

9.5.19.1.0	7 Ahau 3 Uo
9.5.19.2.0	1 Ahau 3 Zip
9.5.19.3.0	8 Ahau 3 Zotz


An inspection of the terminal date in *Db*, *1b*, however, at once clears up all uncertainty as to the date recorded, and eliminates the first two, leaving the third as the only reading possible here.

The day is clearly 8 Ahau, and although the month in *1b* immediately following Glyph A of the Supplementary Series in *1a* (not shown in plate 26, *b*) is partially effaced, enough remains to show that it is 3 Zotz, and that this Initial Series therefore can only be 9.5.19.3.0 8 Ahau 3 Zotz.

Gordon, through a misidentification of the uinal coefficient as 12 instead of 3, and of the month as Mac instead of Zotz, reaches a date 9 uinals later, namely, 9.5.19.12.0 6 Ahau 3 Mac. Even admitting that the head in *1b* looks as much like Mac as Zotz, which it does not, the uinal coefficient can not be 12, as it is clearly 1, 2, or 3. Gordon reads it as 12 only by following an error of Goodman, who assigns the value 10 to the element above the month-sign: .¹ This element, however, is clearly non-numerical, as can be proved in a number of instances.² Indeed, the very passage from which Goodman derived his value of 10 for it, has an entirely different and demonstrable meaning.³ In short, it is quite certain that, whatever it may mean, it in no way affects the numerical value of the coefficients of the glyphs in which it appears, and consequently *cb* here is 3 and not 13 uinals.

Without attempting to explain at this point why such a very early date as 9.5.19.3.0 should be recorded on such a late construction as the Hieroglyphic Stairway, let us pass to the consideration of the other dates of this text, reserving explanation of its probable meaning until all the evidence has been presented.

¹ Goodman, 1897, p. 130.

² An identical case is found in the Initial Series on Stela 11 at Yaxchilan. In *A3* of this inscription, where the tuns of the Initial Series are recorded, this same element stands between the period-glyph and its coefficient of 1: . The context here clearly proves that the tun coefficient is 1 and not 11, as it would have to be if Goodman's decipherment of this element were correct. This element also appears at *D3* in the same text between the month-sign (Tzec) and its coefficient (8), without, however, changing the numerical value of the latter to 18, also proved by the accompanying calculations.

³ See Stela C, p. 350, where it will be found that the date which has this element is 5 Ahau 8 Cumhu, probably 9.17.2.0.0 5 Ahau 8 Cumhu, and therefore, if Goodman were correct in his decipherment of this element as 10, the day here would be 15 Ahau, clearly an impossible value.

DATE 2.

Passing over the glyph-blocks following *1b* in Step D, we reach in *ob*, *p* a Secondary Series composed of katuns, tuns, uinals, and kins. The katun coefficient, *pb*, is surely under 6, and an examination of the original disclosed three rather wide stumps, *i. e.*, 1, 2, or 3 katuns. The tun coefficient is again surely under 6. The numeral is broken, but 5 appears to be the best reading. Both ends are gone, but there is hardly room for a dot to the right.

The kins and uinals are in *cb*. The uinal coefficient, though badly effaced, was high; 15 seems to be the best reading. Careful study of the coefficient to the left (*i. e.*, the kin coefficient) showed 1 bar and 3 dots, the upper one being almost entirely destroyed. The best reading of this number would therefore appear to be 1, 2, or 3.5.15.8; but before deciding definitely let us examine the corresponding terminal date at *s*. (See figure 38, *a*.) The day coefficient is 8, and the day-sign looks like Ahau, but is Lamat. This is not only proved by the calculations, but the ear-ornament of the head in *sa* is the same as the ear-ornament in the day-sign in Date 26 on this same stairway (see plate 27, *cb*), which is surely Lamat. For other occurrences of this Venus variant of Lamat see note 2, page 150, and figure 39.

The month coefficient is 6, and the month-sign, though very unusual, looks more like Chen or Mac than anything else. If the Secondary Series in *ob*, *p* is 1.5.15.18, and is added to Date 1, 9.5.19.3.0 8 Ahau 3 Zotz, it will be seen that the month-sign here must be Mac.

A-D, <i>1b</i>	9.5.19. 3.0	8 Ahau 3 Zotz
<i>ob</i> , <i>p</i>	1. 5.15.8	
<i>s</i>	9.7. 5. 0.8	8 Lamat 6 Mac

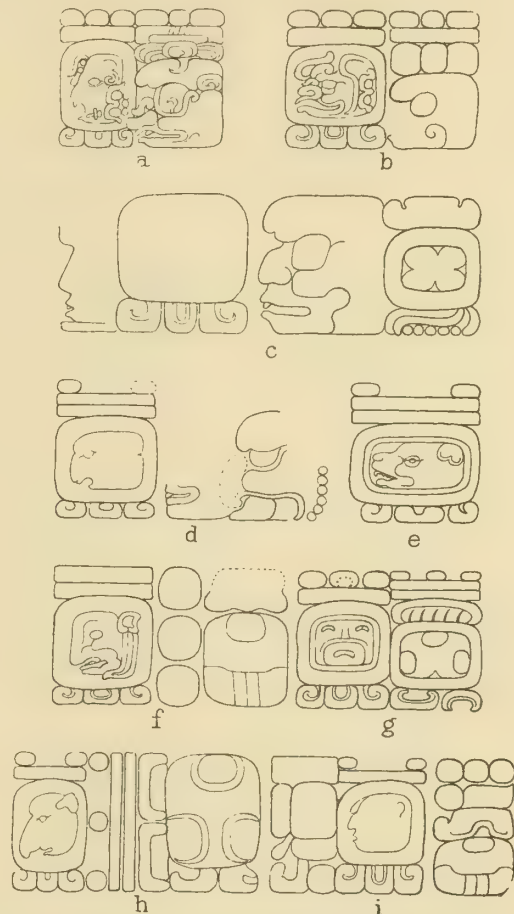


FIG. 38.—Dates from the Hieroglyphic Stairway: *a*, Date 2; *b*, Date 3; *c*, Date 7; *d*, Date 8; *e*, Date 12; *f*, Date 11; *g*, Date 13; *h*, Date 14; *i*, Date 21.

Since use of the katun coefficient in *pb* as 1 agrees with the best reading of the date in *s*, the second and third possible values for the former, 2 and 3 respectively, may be disregarded and the reading accepted as given.

Another consideration also supports the selection of 1 as the katun coefficient in *pb*. The use of 2 or 3 gives rise to impossible values for the terminal date actually recorded in *s*, viz:

9.5.19. 3.0	8 Ahau 3 Zotz,	or 9.5.19. 3.0	8 Ahau 3 Zotz
2. 5.15.8		3. 5.15.8	
9.8. 5. 0.8	6 Lamat 6 Mol,	9.9. 5. 0.8	4 Lamat 6 Zip

In the first case, although the day coefficient might possibly be 6, the month-sign can not be Mol, and in the second case, the day coefficient can not be 4 and the month-sign can not be Zip. More important than either

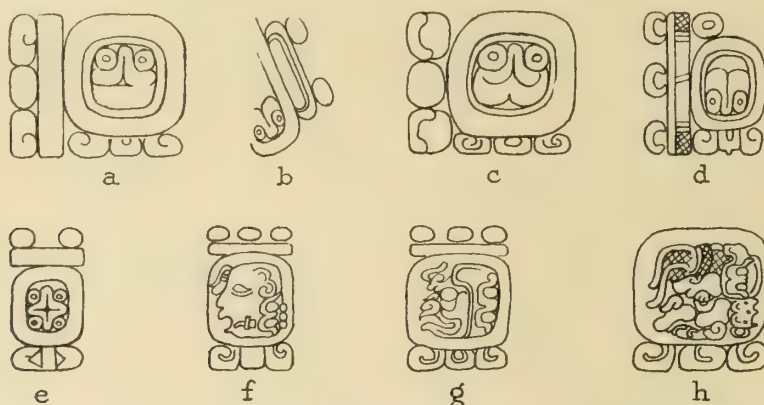
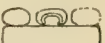
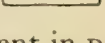
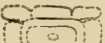
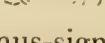


FIG. 39.—Venus variants of the day-sign Lamat from: *a*, Palenque, Palace, Stairway of House C; *b*, Copan, Stela J; *c*, Hieroglyphic Steps of Mound 2; *d*, Stela 23; *e*, fragment Hieroglyphic Stairway; *f*, Hieroglyphic Stairway, Date 2; *g*, Hieroglyphic Stairway, Date 3; *h*, Hieroglyphic Stairway, Date 24.

of these considerations, however, is the fact that the next step (E) opens with the Initial Series 9.7.5.0.8 8 Lamat 6 Mac, *i. e.*, Date 3, which is identical with the above reading of Date 2.

DATE 3.¹

The fifth step (E) opens with an Initial Series just below the one on Step D. Although this is much damaged, the reading suggested is probably correct. The Initial Series introducing glyph and 9 cycles are clear at *a* and *ba* respectively. The katun coefficient, *bb*, always the most important factor in deciphering dates, is equally clear as 7 . The tun coefficient, *ca*, is entirely effaced. The uinal coefficient,  *cb*, is doubtful,  the best reading being 0. The kin coefficient in *da* is entirely gone.  Fortunately, the day-sign in *db* is very clearly Lamat (note the Venus-sign in the ear-ornament in figure 38, *b*), and therefore the destroyed kin coefficient in *da* must have been 8. The day-coefficient is either 6, 7, or 8, with the best reading as 8.

Finally, *gb* is Glyph A of the Supplementary Series and *ha*, the month, is 6 Mac (see figure 38, *b*). Collecting these values, we have: 9.7.?.?.8 6, 7, or 8 Lamat 6 Mac. Referring to Goodman's tables, it will be found that the only places in Katun 7 where all the necessary conditions imposed

¹ Gordon (1902, p. 171) calls this Date 2.




by the terminal date are fulfilled are 9.7.5.0.8 8 Lamat 6 Mac and 9.7.17.3.8 7 Lamat 6 Mac. But the uinal coefficient can not be 3, and, moreover, the first reading is exactly the same as Date 2. In view of these facts, the only reading at all probable here is the first suggested above:

A	Initial Series introducing glyph
Ba	9 cycles
Bb	7 katuns
Ca	5 tuns
Cb	0 uinals
Da	8 kins
Db	8 Lamat
Ha	6 Mac

The purpose here would appear to have been to have Step E open with the same date, declared as an Initial Series, as the closing date on D, the next step above. How far this practice may have extended to other steps on the stairway it is now impossible to say, owing to the destruction of the greater part of the inscription, but such appears to have been the case here at the bottom, at least. Gordon suggests two readings for this date: 9.8.8.6.5 7 Chicchan 8 Mac and 9.8.12.7.5 11 Chicchan 8 Mac, favoring the former.¹ However, since each demands that the katun coefficient be 8 instead of 7 as actually recorded, both may be rejected.

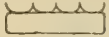
DATES 4 AND 5.²

Dates 4 and 5, at the end of Step E and the beginning of Step F, are almost entirely effaced, and exact decipherment is difficult, if indeed not impossible. The interpretation suggested depends upon the postulate just noted, that the closing date on Step E is the same as the opening date on Step F, and connected by the Secondary Series in N-Q (Step E) with the Initial Series date at the beginning of Step E. We have already seen that such a relation exists between the beginning and closing dates on Step D and the opening date on Step E, and if this same relation obtains between Dates 4 and 5, it is possible to reach three readings for each of them, one of which must be correct under the postulate. The accuracy of this postulate is by no means established, and since the glyphs are badly effaced, this reading, although probably correct, should be accepted with reservation.

Passing over Hb-M (Step E), we reach in N-Q a Secondary Series followed by a date at sb, Ta(?). The former is composed of katuns, tuns, uinals, and kins, of which only the tun coefficient in p is certain. This is 9. The uinal coefficient in o is a head variant  and is clearly above 10. The best readings are 14, 16, or 17. The  katun coefficient is a small head of human aspect. As will appear in  connection with Date 5, if our postulate is correct, this coefficient must be either 1, 2, or 3. A day-sign is recorded at sb, the coefficient of which is best as 1, 2, or 3, and there may be a month-sign at Ta, although this is doubtful. If so, the best reading of its coefficient is also 1, 2, or 3.

¹ Gordon, 1902, pp. 171, 172.

² Gordon (1902, p. 172) calls this Date 3.

Step F opens with an Initial Series, the only surely decipherable parts of which are the cycle and katun coefficients and the month. The cycle coefficient *ba*, is 9, and the katun coefficient, *bb*, is surely above 5 and under 10, *i. e.*, 6, 7, 8, or 9. Of these, 9 is the best reading, as there appear to be traces of four dots above the one bar . The month is surely 18 Kayab, and the day coefficient is 6, 7, or 8. Under the terms of our postulate that Dates 4 and 5 are the same, and that the Secondary Series recorded in N-Q indicates their distance from the Initial Series on Step E, *i. e.*, Date 3, there are only three possible values for Dates 4 and 5, as follows:

Date 4. (9. 7. 5. 0. 8	8 Lamat 6 Mac)	(9.7. 5. 0. 8 8 Lamat 6 Mac)
1. 9.11.17		2. 9.16.17
Date 5. 9. 8.14.12. 5	12 Chicchan 18 Kayab	9.9.14.17. 5 6 Chicchan 18 Kayab
	Date 4. (9. 7. 5. 0. 8	8 Lamat 6 Mac.)
	3. 9. 3.12	
	Date 5. 9.10.14. 4. 0	12 Ahau 18 Kayab.

Since the uinal coefficient in the Secondary Series at 0 on Step E can be neither 11 (first possibility above) or 3 (third possibility above), the second reading, 9.9.14.17.5 6 Chicchan 18 Kayab, is the only one possible under the postulate.

Several minor points tend to confirm this reading. The uinal coefficient at 0, as we have already seen, is possibly either 14, 16, or 17, a fleshless lower jaw and large eye-socket showing clearly. Coming to Date 5, we have seen that the katun coefficient is probably 9. Close study shows that the tun coefficient is above 10 and under 15; this reading gives 14. The uinal coefficient shows that it is above 15 and must be under 18; this reading gives 17. Finally, the best reading of the day coefficient is 6, 7, or 8; this reading gives 6.

The chief objection to this interpretation is that the day coefficient in *sb*, Step E, apparently looks more like 1, 2, or 3 than 6, or even 7 or 8; but *sb* is partially effaced and the other agreements are so satisfactory that the writer is inclined to accept 9.9.14.17.5 6 Chicchan 18 Kayab as correct.

Gordon suggests two readings for this date: 9.9.14.17.4 5 Kan 17 Kayab and 9.9.18.18.4, 9 Kan 17 Kayab, favoring the former.¹ It will be noted that his first reading is only 1 day before the reading suggested above; but since the month coefficient is surely 18, not 17, these two may be regarded as identical. Gordon's second reading may be eliminated, because the tun coefficient can not be above 14.

DATE 6.

In N-Q on Step F there is a Secondary Series composed of katuns, tuns, uinals, and kins, (Date 6), of which all the coefficients except that of the katun are effaced, and even that is a head numeral of unknown value. As the corresponding terminal date is missing, no reading can be suggested here.

¹ Gordon, 1902, p. 172. His transcription of the second date as 9.9.18.18.4, instead of 9.9.19.0.4, that is writing 18 uinals instead of its equivalent, 1 tun, is not only un-Maya in spirit, but also is contrary to the generally accepted method of transcribing Maya dates.

DATE 7.

The next step, G, has no decipherable glyphs, and there appear to be no dates recorded on it. The next step, however, H, opens with a day, the day-sign of which is effaced and the coefficient almost so. Enough remains to show that it was a head numeral of unknown value. This same day may be repeated in the date in O, P on the same step, however, toward the right of the stairway, the month of which is almost certainly 17 Yaxkin. (See figure 38, *c*.) Unfortunately, the day coefficient and sign are badly weathered. The latter must have been either Kan, Muluc, Ix, or Cauac, since only these days could have a corresponding month coefficient of 17. The loss of the day coefficient, however, prevents further decipherment at this point, but, as will appear later in connection with Dates 8 and 9 following, it is probably possible to postulate that Dates 7 and 9 on the one hand and Dates 8 and 10 on the other are the same, and thus to reach a reading for Date 7.

DATES 8 AND 9.

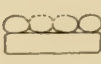
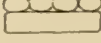
There may be a Secondary Series on Step I at B-D but the glyphs here are too badly weathered to distinguish details. At Q on Step I is a day 12?. As 12 Muluc is the last day on the left of the bottom step nearby, this day in Q may possibly be 12 Muluc also. The next step, J, has no dates; the left half is fairly well preserved, and the right half sufficiently so to show the absence of calendary glyphs.

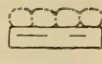
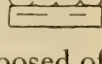
It is indeed unfortunate that the next to last step, K, is not in as good condition as the step above it. In general, the glyphs on this step are in an excellent state of preservation, with the exception of the upper edges, which are broken in most places. As the bar-and-dot coefficients were recorded above most of the glyphs on this step, most of them are damaged. The readings suggested for Dates 8 and 9, therefore, again rest upon a necessary postulate, namely, that Dates 7 and 9 on the one hand and Dates 8 and 10 on the other are the same.

DATE 8.

Step K opens with a date (see figure 38, *d*) which the writer believes is exactly the same as Date 10 just below it, namely, 12 Muluc 7 Muan. (Compare figure 38, *d*, with F and H, plate 26, *a*, where these resemblances are readily apparent.) A similar relationship has already been definitely established between Dates 2 and 3 on successive steps above, and probably between Dates 4 and 5 on successive steps above, and in view of the striking agreements developed by comparison of these two dates, the writer believes that Date 8 on Step K is 12 Muluc 7 Muan. But in the case of Date 10, as we will presently see, an accompanying Initial Series number declares it to have been 9.13.18.17.9 12 Muluc 7 Muan. Therefore the same Initial Series value probably may be assigned to the 12 Muluc 7 Muan of Date 8 on Step K.

Following Date 8, there is a Secondary Series in *cb*, *d*, and in *eb*, probably the day from which this series is counted in order to reach Date 8. The day-

sign coefficient is surely 9  and if the terminal date of this series is 12 Muluc 7 Muan (Date 8),  the day-sign in *eb* must be Cauac. This is true because the kin coefficient of the Secondary Series in *cb* is unmistakably 10, and 10 backward from Muluc gives Cauac.

The kin coefficient in *cb*, however, is the only coefficient in this Secondary Series which is certain. The uinal coefficient *cb* appears to be composed of one bar and four dots, *i. e.*, 9, but this is somewhat doubtful.  The tun coefficient, *da*, is the highest in the series. There seems to be  room for a number between 11 and 15, inclusive, that is, a number composed of two bars and one or more dots, or three bars. In support of this higher value for the tun coefficient than those of the uinal and katun, it should be noted that the tun-sign is lower than the katun and uinal-signs on each side of it, as though more space had been necessary for its coefficient. The katun coefficient is above 5 and below 11 and probably below 10.

Returning once more to our postulate that Dates 7 and 9 are the same, we can now fill in the destroyed day of Date 7 as 9 Cauac (the day of Date 9), and Date 7 then becomes 9 Cauac 17 Yaxkin.

Our problem, then, is to find an Initial Series for 9 Cauac 17 Yaxkin which can be joined to 9.13.18.17.9 12 Muluc 7 Muan (Date 8), by the Secondary Series in *cb*, *d* on Step K.

Since the katun coefficient of this Secondary Series is either 6, 7, 8, 9, or 10, Date 7 must be in Katuns 3, 4, 5, 6, or 7. By referring to Goodman's tables, it will be found that 9 Cauac 17 Yaxkin occurred only thrice in these five katuns, as follows: 9.3.11.12.19, 9.6.4.7.19, and 9.8.17.2.19. Subtracting each one of these dates from 9.13.18.17.9, one of the resulting differences should, if our procedure and postulate be correct, correspond with the Secondary Series in *cb*, *d*:

9.13.18.17. 9	9.13.18.17. 9	9.13.18.17. 9
9. 3.11.12.19	9. 6. 4. 7.19	9. 8.17. 2.19
<hr/>	<hr/>	<hr/>
10. 7. 4.10	7.14. 9.10	5. 1.14.10

A comparison of these differences with the several coefficients of the Secondary Series in *cb-d* shows clearly that the second, 7.14.9.10, is the only one possible here. The best value of the uinal coefficient above was seen to be 9, and the tun coefficient was seen to be between 10 and 16 exclusive; finally, the katun coefficient is between 5 and 11 exclusive. Both the first and third differences disagree for each of these values, as determined by inspection, and it therefore may be concluded, if our postulate is correct, that Dates 7 and 9 are 9.6.4.7.19 9 Cauac 17 Yaxkin, and that the Secondary Series in *cb-d*, Step K, connecting Dates 7 and 9 with Date 8, is 7.14.9.10, viz:

Dates 7 and 9	9. 6. 4. 7.19	9 Cauac 17 Yaxkin
	7.14. 9.10	
Date 8	9.13.18.17. 9	12 Muluc 7 Muan

DATE 10.¹

The last date on the Hieroglyphic Stairway (see plate 26, *a*) is fortunately decipherable. It is an Initial Series and commences on the next to bottom step (K), just to the right of the large altar at the base.² The Initial Series introducing glyph at P and the cycles at Q are almost entirely effaced. (See plate 26, *a*.) The coefficient of the latter, however, is 9. Although only partly effaced, the katun coefficient, *ra*, is somewhat uncertain, the best reading being 13. The tun coefficient, *sa*, is a normal-form head of doubtful value. The uinal coefficient, *ta*, is surely either 12 or 17, and the kin coefficient, *tb*, is surely 9.

The Initial Series terminal date is recorded on the bottom step, L, at A, C. It is 12 ? 7, or 17 Muan, but since the kin coefficient is 9, the day-sign must be Muluc, and we have for the Initial Series terminal date 12 Muluc 7 or 17 Muan. It can be found by calculation that the only places in Katun 13 where these two dates could have occurred are: 9.13.18.17.9 12 Muluc 7 Muan and 9.13.8.15.9 12 Muluc 17 Muan. Since the uinal coefficient is 15 in the second reading, it may be eliminated, and we have left as the only possible reading for Date 10, 9.13.18.17.9 12 Muluc 7 Muan, recorded as follows:

Step K	P	Initial Series introducing glyph
	Q	9 cycles
	R	13 katuns
	S	18 tuns
	Ta	17 uinals
	Tb	9 kins
Step L	A	12 Muluc
	C	7 Muan

Following this in P-R is the corresponding Supplementary Series.

Gordon suggests the reading 11.13.9.14.9 12 Muluc 7 Muan for Date 10,³ reaching the same value for the terminal date as the writer, but differing as to its corresponding Initial Series number. His value for Date 10, if correct, would make it the latest Initial Series known anywhere in the Old Empire by more than 600 years, and for this reason alone, if for no other, it should be viewed with suspicion.⁴ Moreover, against Gordon's reading there is another fundamental objection, namely, that throughout the entire range of the Maya hieroglyphic writing no certain Cycle 11 Initial Series is known. Indeed, it is highly probable that the Initial Series method of recording dates

¹ Gordon (1902, p. 173) calls this Date 4.

² This date and the next, No. 11, might possibly be included with Stela 4 and Altar I' here at Copan and Stela 10 at Tikal, as exceptions to the general rule that Initial Series introducing glyphs only occupy the first positions in the several texts where they occur. Strictly speaking, this is true, but the cases are hardly parallel, and the arrangement of this particular text is such, the longest in the *Corpus Inscriptionum Mayarum*, that the writer has not thought it necessary to regard them as exceptions.

³ Gordon, 1902, pp. 173-177.

⁴ The latest Initial Series known in the Old Empire (with this improbable exception) is Stela 2 from Quen Santo, in the Department of Huehuetenango, Guatemala (see plate 1). It records the date 10.2.10.0.0. 2 Ahau 13 Chen, and is over 600 years earlier than Gordon's reading of Date 10.

passed out of use, if indeed not out of memory, before Cycle 11 began.¹ Thus, while he correctly deciphers the Initial Series terminal date as 12 Muluc 7 Muan and the katun and kin coefficients as 13 and 9 respectively, his misidentification of the cycle, tun, and uinal coefficients as 11, 9, and 14 respectively leads him astray, and makes necessary the rejection of his reading. There are no other dates on this step.

This concludes the discussion of the steps *in situ*, which we have seen contain four Initial Series—Dates 1, 3, 5, and 10. Let us next examine the 15 steps which slid down from some higher part of the stairway, but which still retain their original sequence, *i. e.*, *fg*, figure 37. (See Gordon, 1902, plate 5.)

The first step of this section, M (Gordon, 1902, plate 5, A),² is incomplete, and shows no dates. The next step, N, is also very fragmentary. There is a Secondary Series composed of 6, 7, or 8 kins, 9 uinals, and 11 tuns at JK, but as L is destroyed it is impossible to tell whether it contained any katuns or not; the terminal date is wanting, and indeed the whole series is so fragmentary that it is impossible to decipher it further.

The next step, O, begins with a curious glyph in which the tun-sign appears, but with no other known period glyphs, and D is 8 Ahau, but as E is destroyed it is impossible to even approximate its position in the Long Count.

DATE 11.³

The first three glyph-blocks on Step P, A–C, present no familiar signs. Next probably came one of the large seated human figures occupying the space of four glyph-blocks, D–G. The next three, H–J, are occupied by a crouching human figure; and this is followed in K by an Initial Series introducing glyph. Although the right half of this is missing, enough remains to render its identification certain. The left half of L is also missing, but the right half shows that it had been the cycle-sign and its coefficient. We are

¹ It is possible that the Initial Series in the Temple of the Initial Series at Holactun, Yucatan, may record the following Cycle 11 date, 11.2.8.4.9 7 Muluc 17 Tzec (see Morley, 1918a, p. 274), and there are also several Cycle 11 Period Ending dates known. (See Appendix II, pp. 510, 511). Gordon suggests the Secondary Series 11.14.5.1.0 on Stela C may record a Cycle 11 date:

"The probable exception referred to is Stela C, Copan, which has on the south side an inscription having a date which would seem to be not far removed from Date 4 [Date 10 here], and it is not unlikely that when the dates on Stela C are understood, this monument will be found to belong to the same period as the Hieroglyphic Stairway. The two monuments have certain technical affinities in the carving, as though they might have been the work of the same master." (1902, p. 185.)

As will appear in the discussion of Stela C (pp. 345–351), this text will not permit such an interpretation. To begin with, A6b is 11 cycles and not Cycle 11 of Maya chronology; and instead of reaching *forward* from Cycle 9 (the cycle of the historic epoch at all the southern cities) to Cycle 11, this count actually reaches *backward* to a date before the starting-point of Maya chronology. In other words, instead of being an Initial Series, as it would have to be to record a Cycle 11 date as Gordon suggests, A5–A6 is simply a Secondary Series of 11.14.5.1.0 which reaches backward from the date (9.16.12.13.0) 6 Ahau 13 Muan in A9 to (18.2.7.12.0) 6 Ahau 18 Kayab in A7b–A8a, more than 700 years before the starting-point of Maya chronology, and in the previous great-cycle (18) to that of the historic period (19).

² In the present discussion these steps have been given continuous lettering with the steps *in situ*, that is, Step M is the first of this section.

³ Gordon (1902, p. 178) calls this Date 6; his Date 5 is the Initial Series introducing glyph at E, plate 12, here described as Date 28.

perfectly justified in filling in the latter as 9. Gordon incorrectly shows two whole glyph-blocks missing between the Initial Series introducing glyph and the cycle-sign (Gordon, 1902, plate 5, D8 and D9); but he calls attention to this error in the text, and states (as here) that no complete glyph-block is missing, only the right half of κ and the left half of L.¹ The katun coefficient, ma , is surely 15 and the tun coefficient, mb , is equally clear as 12. The uinal and kin coefficients, na and nb , respectively, are both 10. The day of the Initial Series terminal date is recorded at oa and is 10 Oc, and the month at ra and is 3 Cumhu.² (See figure 38, *f*.) Collecting these values, the Initial Series here recorded will be found to be 9.15.12.10.10 10 Oc 3 Cumhu, as follows:

Step P, κ	Initial Series introducing glyph
L	9 cycles
ma	15 katuns
mb	12 tuns
na	10 uinals
nb	10 kins
oa	10 Oc
ra	3 Cumhu

Gordon, in deciphering this date, makes several errors that lead him to a series of five possible readings, the extremes of which are over 325,000 years apart,³ and the nearest over 41,000 years later than Stelæ M and N, or in fact than the latest known monument anywhere.

These truly colossal time conceptions may well have been entertained in the abstract by the Maya priests, as Gordon points out, and indeed as the writer himself believes;⁴ but that even the nearest of his readings is the correct value of Date 11 is practically impossible. His conclusions rest on a series of misidentifications, as follows: His first error is in supposing that the month 13 Pop (A, Step Q) is part of the terminal date of the Initial Series on Step P above, and further, that the coefficient of the day reached by this Initial Series is 11 instead of 10, as actually recorded. Having made this initial mistake, he is obliged to go over 41,000 years forward in the Maya chronological system before he can find the *nearest* date fulfilling all the conditions he himself has imposed.

The date actually recorded here has already been set forth. The day of the Initial Series is 10 Oc not 11 Oc and the corresponding month is 3 Cumhu (ra , Step P) and not 13 Pop (A, Step Q). The latter is part of Date 12, namely, 12 Oc 13 Pop, from which a Secondary Series of 6.5.10 in L, Step R, is counted.

By reading this Secondary Series in two different ways, first as 6.10.5 and second as 6.5.10, Gordon reaches two different dates 12 Men 8 Pop and 6 Ahau 13 Tzec, neither of which, however, is found in the text. The first he

¹ Gordon, 1902, p. 178.

² This block of stone, having the right edge of o, all of p, q, r, and the left edge of s, is Altar A' (see p. 68) of the Early Period.

³ Gordon, 1902, pp. 178-181.

⁴ Morley, 1915, pp. 107-127.

believes occurs at *mb*, *na* Step Q, but this as we have already seen is 12 Oc. The second he sees at *B*, Step R, but this is 7 Ahau 13 Tzec, as will appear in connection with Date 13.

Aside from the actual disagreements which his readings present with the text as recorded, his dates must be rejected on the grounds of extreme historic improbability, if indeed not impossibility. The reading suggested here, on the other hand, is within less than a katun of the date on the monument, which Gordon himself admits was probably correlated with the Hieroglyphic Stairway, namely, Stela M.¹

DATES 12 AND 13.

Step Q opens with the month-sign and coefficient 13 Pop, its corresponding day possibly being the missing glyph *r* at the right end of the preceding step (P). Passing over this fragmentary date (Date 12) for the moment, let us examine the next calculation, *L*, Step Q. Here is a Secondary Series composed of 6.5.10 and in *mb* a day-sign with the coefficient 12. (See figure 38, *e*.) The day-sign is a grotesque head not unlike the sign for Oc at *oa* on Step P.

Following along through the inscription, no more glyphs of a calendary nature are found until we reach the second glyph-block, *B*, on the next step, *R*, where the date 7 Ahau 13 Tzec is recorded (see figure 38, *g*), followed by a well-known hand ending-sign in *D*. By counting backward 6.5.10 from 7 Ahau 13 Tzec, the date reached will be found to be 12 Oc 13 Pop, and we have just seen that this month was in fact the first glyph on Step Q, and a day 12 ? is actually recorded in *mb* on the same step immediately following 6.5.10. The next question is, what positions in the Long Count did these two Calendar Round dates occupy?

In solving this question, it should be borne in mind that these dates are probably to be looked for first in the vicinity of 9.15.12.10.10 10 Oc 3 Cumhu, the nearest Initial Series to them. By calculation it can be shown that 7 Ahau 13 Tzec occurred nearest 9.15.12.10.10 at 9.15.11.16.0, less than a year earlier (250 days). Counting 6.5.10 backward from this date, the Initial Series corresponding to 12 Oc 13 Pop will be found to have been 9.15.5.10.10, as follows:

Date 13	9.15.11.16. 0	7 Ahau 13 Tzec
	6. 5.10	backward
Date 12	9.15. 5.10.10	12 Oc 13 Pop

And this value for Date 12, moreover, is further corroborated by being just 7 tuns earlier than Date 11:

9.15. 5.10.10	12 Oc 13 Pop
(7. 0. 0)	not declared
9.15.12.10.10	10 Oc 3 Cumhu

A summary of Dates 11, 12, and 13 follows:

Step P	K-Oa, Ra	9.15.12.10.10	10 Oc 3 Cumhu	(Date 11)
Step P		(7. 0. 0)	not declared	
Steps P and Q	T?, A, Mb	9.15. 5.10.10	12 Oc 13 Pop	(Date 12)
Step Q	L	6. 5.10		
Step R	B	9.15.11.16. 0	7 Ahau 13 Tzec	(Date 13)
Step R	D	Ending		

¹ Gordon, 1902, p. 164.

It has been noted that the day 12 Oc was probably the last glyph in Step P, T, in order to precede immediately its corresponding month-part 13 Pop, the first glyph in Step Q, A. The day 12 Oc was again repeated in Mb, Step Q, after the Secondary Series number 6.5.10, in order to show that the starting-point of this count was 9.15.5.10.10 12 Oc 13 Pop, as the record of the day alone was sufficient to indicate the starting-point in most cases.¹

DATE 14.

On the next step, S, there is Secondary Series at M6, N preceded by the usual Secondary Series introducing glyph. The kin coefficient is clearly 0. The uinal coefficient is badly weathered; it seems to be about the same thickness and shape as the kin coefficient, and may be 0 also. In any case it can not be above 5. The tun coefficient is surely 1, 2, or 3. The right-hand dot shows clearly. The next glyph is of unknown meaning, but the next two (see figure 38, *h*) record the date 7 Ahau 13 Tzec, which is doubtless 9.15.11.16.0 7 Ahau 13 Tzec, *i. e.*, Date 13. The day-sign is somewhat effaced, but this identification appears beyond doubt. If this is the terminal date of the series, and if the uinal coefficient is 0, three different readings may be suggested:

9.15.10.16.0	11 Ahau 18 Tzec	9.15. 9.16.0	2 Ahau 3 Xul
1. 0.0		2. 0.0	
9.15.11.16.0	7 Ahau 13 Tzec	9.15.11.16.0	7 Ahau 13 Tzec
	9.15. 8.16.0	6 Ahau 8 Xul	
	3. 0.0		
	9.15.11.16.0	7 Ahau 13 Tzec	

If, on the other hand, 7 Ahau 13 Tzec is the starting-point, as may well be, the best reading is

9.15.11.16.0	7 Ahau 13 Tzec
3. 2.0	
9.15.15. 0.0	9 Ahau 18 Xul

which also has the merit of ending a hotun in the Long Count. But all of these readings are so problematical that no one is to be preferred to another, except that on the grounds of antecedent probability the last is more likely to be correct than the other three, because it ends the nearest hotun in the Long Count.

From this point on to the end of this section of the stairway (Steps S-A') there are no decipherable glyphs. Occasionally day-signs appear here and there (*Fb*, Step U; *κb*, Step Z; and *c*, Step A', for example), but these are not only badly weathered, but also they can not be connected with any known dates or even with each other, and the text is undecipherable from this point on.

This ends the second and last section of steps which are in their original order. The remaining dates have been pieced together, from fragments found in the débris at the bottom of the stairway. These must have come

¹ Gordon believes (1902, p. 180) that *na*, Step Q (his E14a) is the month-part corresponding with the day in *mb*. A careful examination of the original, however, did not lead the writer to this conclusion.

either from above Steps M-A', that is, section *yd*, figure 37, or between Steps A-L, and Steps M-A', that is, section *ex*, figure 37.

Reasons will be advanced later tending to show that the next six dates, Nos. 15 to 20, probably came from the latter section, *ex*, just above the only section now *in situ*, *i. e.*, from just above *e* in figure 37.

DATE 15.

Date 15 is presented on two blocks of stone, the first 1.52 meters long, the second 1.22 meters long. The glyph-blocks are 27 cm. high. (See plate 26, *c*;¹ also, Gordon, 1902, plate 12, R, first block, and c, second block.) The coefficients of all the period glyphs are clear and record the Initial Series number 9.5.17.13.7. Although the day-sign is effaced, its coefficient is surely 1, 2, or 3, with 2 or 3 much better than 1, and since the kin coefficient in *na* is 7, the missing day-sign must have been Manik. Solving this Initial Series number for its terminal date, it will be found by calculation to have been 9.5.17.13.7 2 Manik 0 Muan, and the day coefficient is therefore 2, not 3. The next glyph, E, is entirely effaced, and the right half is missing. It probably recorded the first glyph of the Supplementary Series.

Near where the first block was found, on the stairway, the second block mentioned above was uncovered. This opens with a sign surmounted by the number 9, probably Glyph A of the Supplementary Series, and following it very clearly is ? Muan. The writer believes this sign is the month of the above Initial Series terminal date and is to be read 0 Muan. Several factors point to such a conclusion. First, these two blocks were found close together. Indeed, in one of the Peabody Museum photographs² taken *before* the steps *in situ* had been excavated (figure 37, *ce*), and *after* those in order but not *in situ* had been removed (figure 37, *fg*), these two blocks are shown arranged together, with a third block standing between them. This third block between has the lahuntun-sign, followed by 7 Ahau 3 Cumhu, which can hardly be other than 9.13.10.0.0 7 Ahau 3 Cumhu,³ and wherever else it may belong, it is certain that it can not follow the first block above and record the terminal date of its Initial Series. The block with the month Muan (the last in plate 26, *c*), on the other hand, must have been discovered near by, or otherwise it would not be found with the first block of Date 15 in the Peabody Museum photograph. Moreover, it presents the proper glyphs, the last glyph of the Supplementary Series, and the month ? Muan. And finally, from what little remains of the month coefficient, it looks more like 0 than anything else. (See plate 26, *c*.) Giving these factors due consideration, it seems probable, therefore, that this block records the month of this Initial Series terminal date, and that formerly another block stood between it and the first block above, although not the one shown in the Peabody

¹ Only the left end of the second block is shown in plate 26, *c*, *i. e.*, the glyph-block recording Glyph A of the Supplementary Series, and the month, 0 Muan, of the Initial Series terminal date.




² This photograph is No. 385 in the Peabody Museum catalogue of photographs.

³ This date is discussed as Date 21, pp. 256, 257.



Museum photograph, the missing block having had the greater part of the corresponding Supplementary Series. In any event, however, Date 15 is surely deciphered as given:

Block 1	A	Initial Series introducing glyph
	Ba	9 cycles
	Bb	5 katuns
	Ca	17 tuns
	Cb	13 uinals
	Da	7 kins
	Db	2 Manik
Block 3	?	o Muan

DATE 16.


In the same Peabody Museum photograph, which shows the two blocks of Date 15 (No. 385), in fact immediately above them, as though it began the next step above in the stairway, is shown a single block of stone 89 cm. long, presenting the first two glyph-blocks and part of the third of an Initial Series. (See Gordon, 1902, plate 12, R, second block.) Unfortunately the cycle and katun coefficients in B are both destroyed. The former, however, appears to have been almost twice as thick as the latter, and comparing these with the corresponding coefficients in Dates 15 and 17, it seems highly probable that the katun coefficient of Date 16 was not above 5; and indeed the best reading would appear to be 5.  The tun coefficient was either 13 or 18. Two bars and three dots  show clearly, and then comes the right edge of the stone. The date,  though fragmentary, may be deciphered as far as it goes as 9.5.13 or 18.?.? and probably as 9.5.13.?.?

DATE 17.



In the same Peabody Museum photograph (No. 385), as Dates 15 and 16, in fact directly above Date 16, as though it began the step just above that on which Date 16 was inscribed, is shown a single block of stone, again 89 cm. long, presenting the first two glyph-blocks and part of the third of an Initial Series. (See Gordon, 1902, plate 12, R, third block.) The Initial Series introducing glyph appears at A, the cycles and katuns at Ba and Bb respectively. The cycle coefficient is effaced, but can doubtless be restored as 9. The katun coefficient is clearly 5, with an ornamental inner line.  The tun coefficient, Ca, was above 5, but is too effaced to decipher.  The fracture comes about halfway through the tun-sign. The date so far as deciphered reads 9.5.?.?.?

In this Peabody Museum photograph these three Initial Series (Dates 15, 16, and 17) are shown one above the other, as though they occurred on three successive steps of the stairway. The same photograph also shows that they came from the left-hand side of the stairway; and since they are Initial Series, it seems probable that they began the inscriptions on three successive steps like Dates 1, 3, and 5 in section *ce* below. Dates 15, 16, and 17, moreover, show close stylistic affinities with Dates 1, 3, 5, 18, 19, and 20, and for this reason, as well as upon chronologic grounds, they all probably came from the same part of the stairway.

DATE 18.

Date 18 occurs on a single block, which shows the first two glyph-blocks of an Initial Series, the introducing glyph being at A and the cycles and katuns at B. (See Gordon, 1902, plate 12, R, ) fourth block.) The cycle coefficient, *Ba*, is 9 and the katun coefficient, *Bb*, is 5. The block ends after the katuns.

DATE 19.

Date 19 occurs on a single block 58 cm. long, presenting the Initial Series introducing glyph at A, and 9 cycles at *Ba*. The break occurs in the middle of the second glyph-block between the cycles and the katuns; the latter are missing. There is another stone, which came from nearby (Gordon, 1902, plate 12, Q, fourth block) which shows katuns and tuns in two different glyph-blocks. The  katun coefficient is 5 or under, and the tun coefficient 6, 7, or 8. The style of the glyphs with bar-and-dot coefficients above  strongly resembles the style of the glyphs and coefficients in Dates 1, 3, 5, 15, 16, 17, 18, 19, and 20. But of these nine Initial Series the only ones without their corresponding katun-glyphs are Dates 19 and 20. It is not improbable, therefore, that this block may join the block on which Date 19 starts, and may declare its katuns and tuns. If so, the best reading would appear to be 9.5.6.?.?.

That this block is more likely to have been part of Date 19 than Date 20 seems probable from the fact that the cycle-sign is missing from Date 20, and if this block should record its corresponding katuns and tuns, it is necessary to assume that the corresponding cycle-sign was recorded on a very narrow piece of stone, perhaps not more than 18 cm. wide, which would have been contrary to the usual practice of using fairly long blocks of stone in the stairway.

DATE 20.

Date 20 occurs on a block 43 cm. long. It presents only the Initial Series introducing glyph and the cycle coefficient, which is 9. The cycle-sign is missing. The variable element of the Initial Series introducing glyph is the kin-sign, which is also the corresponding element in the Initial Series introducing glyph of Date 28. Dates 15 to 20 inclusive are early, perhaps all in Katun 5. All six were probably from the left ends of the steps on which they were inscribed, and, as will be shown later, all six probably came from steps immediately above those now *in situ*, *i. e.*, from section *ex*, figure 37.

DATE 21.

Date 21 has already been noted in the discussion of Date 15 (plate 26, *c*). It occurs on a block incorrectly shown in a Peabody Museum photograph (No. 385) as standing between the two blocks of Date 15. The first glyph is the lahuntun-sign, followed by the date 7 Ahau 3 Cumhu. (See figure 38, *i*.) The lahuntun-sign fixes this date as ending some even half-katun of the

Long Count, and by referring to Goodman's tables it will be found that the only place in Cycle 9 where 7 Ahau 3 Cumhu stood at the end of a lahuntun was 9.13.10.0.0. The date 7 Ahau 3 Cumhu, moreover, can not end a lahuntun elsewhere in Maya chronology until after a lapse of nearly 19,000 years either before or after 9.13.10.0.0, which may therefore be accepted as its corresponding Initial Series.

DATES 22 AND 23.

Dates 22 and 23, with the number connecting them, constitute a Secondary Series. (See figure 40, and Gordon, 1902, plate 12, F, first and second blocks.) These dates are presented upon two consecutive stones, and from a historical point of view, one of them, Date 23, is possibly the most important in the entire range of the Copan inscriptions, giving, as it does, a chronological point of contact with another Maya city.

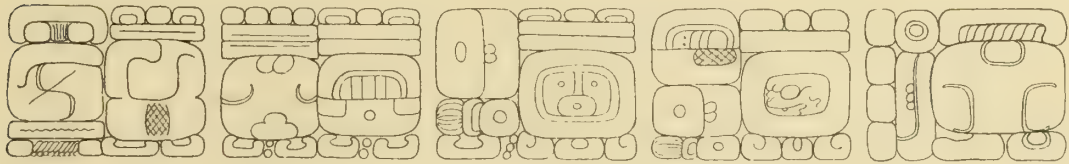


FIG. 40.—Dates 22 and 23 from the Hieroglyphic Stairway.

This series opens with the glyph, *Aa*, usually introducing Secondary Series (see figure 40), which is followed by 11.14.6 in *Ab-Bb*. In *ca* is a sign of unknown meaning, usually associated with the Secondary Series, and in *cb* the day, 11 Ahau, and finally in *da* is an ending-sign with the sign in *ca* repeated. Following the precedent established in Dates 12 and 13, where the day 12 Oc was repeated to show the starting-point of the count, it seems probable that 11 Ahau is recorded here to show that 11.14.6 is to be counted therefrom. If this is done the day reached will be found to be 6 Cimi, which is actually recorded in the next glyph but one after 11 Ahau. (See *db*, figure 40.) Following 6 Cimi, at *e*, is 4 Tzec, which it is reasonable to conclude is the month corresponding to this day. Now, counting our Secondary Series 11.14.6 back from 6 Cimi 4 Tzec, the starting-point of our count will be found to have been 11 Ahau 18 Zac. We therefore have recorded here a number, 11.14.6, which, if counted forward from 11 Ahau 18 Zac, will reach 6 Cimi 4 Tzec.

In the majority of such cases, the count either starts from or reaches a tun-ending in Maya chronology, and since 11 Ahau 18 Zac is the only one of these two dates which could possibly end an even tun, it is reasonable to assume that it probably ends some period of the Long Count. Referring to Goodman's tables, it will be found that the only tun in Cycle 9 ending on the date 11 Ahau 18 Zac is the hotun-ending 9.14.15.0.0 11 Ahau 18 Zac, or indeed for about 950 years either before or after 9.14.15.0.0. It is highly probable, therefore, that this hotun-ending is the starting-point of the

count. If this is true, the terminal date, 6 Cimi 4 Tzec, can be shown by calculation to have been 9.15.6.14.6 6 Cimi 4 Tzec, as follows:

Date 22	9.14.15. 0.0	11 Ahau 18 Zac
	11.14.6	
Date 23	9.15. 6.14.6	6 Cimi 4 Tzec

The great importance of this latter date lies in the fact that it is the only date in the Maya inscriptions, so far as the writer knows, which appears to establish a direct chronological connection between two different cities. In addition to its occurrence here at Copan, it is found on four different monuments at the neighboring city of Quirigua, some 60 kilometers to the north (see plate 1).

- (1) Stela J, south side H₂, G₃
- (2) Stela F, west side B_{11b}, A_{12a}
- (3) Stela E, west side A_{13b}, B_{13a}
- (4) Zoömorph G, east side N_b u. h., Na l. h.

We have already seen that it was a general custom among the Maya to erect monuments at the ends of the successive hotuns in the Long Count, and since the same chronological system obtained throughout the entire southern Maya area, it follows that many cities have monuments recording the same hotun-endings without further evidence of direct historical connection.¹ But Date 23 clearly does not belong to this latter category, as it does not fall at the end of a hotun or any division thereof, and indeed, so far as its position in Maya chronology is concerned, it is quite fortuitous. Like our own Fourth of July or Thirtieth of May, it closes no unit of the calendar, and is therefore probably to be regarded as the date of some actual historical happening or astronomical event.

The occurrence of such a date at two adjacent cities, moreover, strongly suggests that it marks an event common to the history of both; in a word, it is the first indication from the chronological side that more than one city participated in the same historical event. While the nature of the event corresponding with this important date yet remains to be determined, there are some reasons for believing that it was of greater importance to Quirigua than to Copan. This matter will be more fully set forth at the close of this discussion. (See pp. 272, 273.)

DATE 24.

Date 24 is an Initial Series expressed by full-figure glyphs, being one of the only five known (p. 231, and plate 27). Gordon was the first to call attention to it,² and he figures several of its glyph-blocks (1902, plate 12, K, blocks 1, 2 and 3; L, block 1; and O, block 4). There are at least two others, however, Fragments 4 and 9, plate 27, which have not been published heretofore. The eight fragments recovered are arranged as shown in plate 27, the only doubtful one being No. 4, the uinal-sign, which may not belong to this Initial Series at all. From this plate it will appear that several blocks are missing. To begin with, there was one block (or two) to the left of Frag-

¹ See Appendices VII and VIII.

² See Gordon, 1902, p. 184.

ment 2, upon which the Initial Series introducing glyph and the cycle coefficient were recorded. Fragment 2 has a part of the cycle-sign and the katun coefficient and sign. The period-glyph appears as an eagle which is overwhelming a human figure, the katun coefficient. Unfortunately the identity of this numeral is not as clear as it might be, except that it is 10 more than the tun coefficient; that is, the tun and katun coefficients have exactly the same kind of head-dress, the only difference between the two numbers being that the fleshless lower jaw, present in the katun coefficient, is wanting in the tun coefficient. A close study of these two head-dresses shows that they resemble somewhat the banded head-dress, characteristic of the head-variant for 3; and the head and body of the katun coefficient show death characteristics peculiar only to the number 10. Note the fleshless lower jaw already mentioned, and the exposed ribs. All things considered, the best readings for these two coefficients are 13 and 3 respectively, although owing to the loss of the month, and the failure to identify the day coefficient, exact proof thereof is not possible.

Fragment 3 presents the tun-sign and coefficient and the uinal coefficient, all of which are perfectly clear. The tun-sign is represented by a grotesque bird with fleshless lower jaw, and head-dress composed of the normal form of the tun-sign clinching the identification. The tun coefficient is just like the katun coefficient, as already noted, except for the absence of the fleshless lower jaw, and the best reading, as we have already seen, is probably 3. The uinal coefficient most closely resembles 7; the scroll passing under the eye and in front of the nose appears clearly at the right edge of Fragment 3.

The uinal-sign in Fragment 4 may not belong to this Initial Series at all. The toad shown is a little large as compared with the other figures in this date. At its right there is very clearly a beveled edge, indicating that this block was at the right end of a step. However, since the left edge of the next piece in order, Fragment 5, was similarly beveled, this latter may have been the first block on the next step.

Fragment 5 has the kin-sign and coefficient. The latter resembles the head for the number 8 rather closely, and since the day-sign on the next glyph-block is surely *Lamat*, this reading is certain.

Fragment 6 has the day-sign and coefficient. The former is a large grotesque head, at first sight quite devoid of resemblance to any of the known day-signs; but upon closer examination it will be noticed that the ear of this head is the *Venus* variant for *Lamat*.¹ The day-sign coefficient,

¹ This practice is not uncommon. As the writer has explained elsewhere (Morley, 1915, pp. 23-25), every Maya glyph seems to have had its essential characteristic, its determining element, without which it is not. Processes of glyph conventionalization and concessions to harmony of design frequently eliminate one element or another, but the essential characteristic is always retained. It is the irreducible minimum without which the sign loses its distinctive meaning. Thus in the Initial Series on Structure 1 at Quirigua, the month-sign of the terminal date appears as the head-dress of a grotesque head. Again, in the Initial Series on Stela D, also at Quirigua, the essential characteristic of the day-sign is applied to the cheek of a gorgeously panoplied human figure, and it is almost lost sight of amidst the splendor of the head-dress. Here at Copan on Altar T the outline of the day-sign for *Caban* is changed to resemble the profile of an animal head which is attached to an animal body, without at all changing the significance of the glyph, which records simply the day 4 *Caban*, the 4 being expressed by 4 dots in the head-dress just above the head. See also the month-sign on Stela D. This practice is familiar and seems to have been particularly common at Copan and Quirigua. (See Morley, 1915, figure 11 and pp. 24, 25.)

however, is not so easily deciphered. The head of the human figure recording this number is normal, but is somewhat different from the head for 8 in Fragment 5. It seems to be more like the head of an old man, whereas the head for 8 is more youthful, showing none of the lines of age. The best readings are 1, 12, and 4 in this order, although several other values, namely, 2 and 11, must be admitted as possibilities.¹ Part of Glyph F, the seventh glyph of the Supplementary Series, counting from the right, is at the right side of Fragment 7, and the rest of it is on Fragment 8.

Fragment 9 has Glyph C, the fourth of the Supplementary Series.² The rest of the text, including the month-sign of the Initial Series, is missing.

The Peabody Museum photograph, No. 378, shows a fragment, which almost certainly must have been a part of Date 24. The single glyph-block preserved shows two human figures facing each other as in the other glyph-blocks of this date.

Assembling the preceding values and selecting the best reading in each case, we will have the following Initial Series number: 9.13.3.7.8; and referring to Goodman's tables, it will be found that this corresponds to the date 1 Lamat 1 Chen.

Fragment 1	Initial Series introducing glyph
Fragments 1 and 2	9 cycles
Fragment 2	13 katuns
Fragment 3	3 tuns
Fragments 3 and 4	7 uinals
Fragment 5	8 kins
Fragment 6	1 Lamat
Missing	1 Chen

If the uinal coefficient is either 1, 2, 4, 7, 8, 9, 11, or 12, and the day coefficient either 1, 2, 4, 7, 8, 9, 11, or 12, which would seem to comprise all the values even remotely possible for either of them, there will be found to have been only four places in Tun 3 of Katun 13 of cycle 9 where these conditions fit:

9.13.3.1.8	11 Lamat 1 Zip
9.13.3.7.8	1 Lamat 1 Chen
9.13.3.8.8	8 Lamat 1 Yax
9.13.3.9.8	2 Lamat 1 Zac

But of these, the first and the last two may probably be eliminated, the first because the uinal coefficient does not resemble any known forms for 1; the third because the uinal and day coefficients are not alike and do not resemble the kin coefficient in Fragment 5, which is 8; and the fourth because the uinal coefficient does not resemble any known forms for 9. And this leaves the second 9.13.3.7.8 1 Lamat 1 Chen as the most probable reading for this date, although it is by no means certain. If the block presenting the month-glyph should be discovered, this uncertainty would disappear.

¹ It is necessary to include 2 and 11 here, since the head-variants for these numbers have not been identified yet; and either might be the day coefficient here.

² This last sign is clearly Glyph C of the Supplementary Series. (See Morley, 1916, pp. 376-381.) The month-sign was the fourth glyph after this, the variable Glyph X, Glyph B, and Glyph A intervening. There are at least three fragments missing after Glyph C, or perhaps even four.

The glyphs of Date 24 are among the most beautifully executed in the whole range of the Maya writing. The adaptation of the design to the space available in each glyph-block is masterly, and shows a grasp of the principles of composition equaled by few other peoples. Holmes, of the United States National Museum, regards the arrangement of the two figures in Fragment 5 as one of the most successful compositions ever achieved.

DATE 25.

We come next to three fragmentary Initial Series, Dates 25, 26, and 27, the Initial Series introducing glyphs of which are missing. These are very different in style and arrangement from Dates 1, 3, 5, 15, 16, 17, 18, 19, and 20. Each of the periods occupies a full glyph-block and the coefficients appear at the left instead of above. More important still, however, is the fact that the date of the only one that can be deciphered is late, which tends to place all three of them in the later group with Dates 10, 11, 12, 13, 21, 22, 23, and 24.

Gordon (1902, plate 13, P) figures the first block. (See also plate 26, *d*.) This records 9 cycles and 14 katuns. The left end with the Initial Series introducing glyph is missing. It shows a fracture, indicating that the Initial Series introducing glyph, or at least part of it, was originally recorded on this block. The other end, on the contrary, has been dressed smooth, so that it would fit closely against the next adjoining stone. The joint at this end falls in the katun-sign, about two-thirds of which, including its coefficient, are on this stone. This piece, now in the Peabody Museum, is 635 mm. long and 267 mm. high. (Catalogue No. C 862.) (See plate 26, *d*.)

During the writer's visit to Copan in 1915, he succeeded in finding the block which in all probability came next in the stairway. Both ends are dressed smooth, so that it would fit closely against the next adjoining blocks. It is 927 mm. long and 279 mm. high. The stone begins with the right third of a glyph-block, the lower right-hand corner of which shows the same design as the lower right-hand corner of the cycle-sign on the preceding stone. Next comes 10 tuns and 10 uinals and 12 or 17 kins, the end of the block falling at the right of the second bar, hence the possibility of another bar having been recorded upon the next stone.

As just noted, the cycle-sign has this same treatment in its lower right-hand corner. (See plate 26, *d*.) Further, the coefficients on each block are at the left instead of above, and in both they are bai-and-dot numerals; and finally, and most important of all, the right third of the glyph-block, which begins the stone found in 1915, if added to the block which is in the Peabody Museum, gives a glyph-block of the *same* width as the others on both pieces.

The glyph-blocks on both pieces are exactly the same height and width, and when the two stones are joined, the katun-sign and coefficient are found to be the same width as the others. See measurements at top of page 262.

	Cycle-sign and coefficient.	Katun-sign and coefficient.	Tun-sign and coefficient.	Uinal-sign and coefficient.	Max. difference between stones.
	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
Height of glyph-block....	264	266	266	272	8
Width of glyph block....	343	254+095 or 349	330	330	19

The above maximum differences are so slight as to be negligible, and in all probability these two stones fit together and record one of the two following Initial Series, depending upon whether the kin coefficient is 12 or 17, 9.14.10.10.12 9 Eb 10 Tzec or 9.14.10.10.17 1 Caban 15 Tzec, as follows:

First block	A	(Initial Series introducing glyph) missing
	B	9 cycles
First and second blocks	C	14 katuns
Second block	D	10 tuns
	E	10 uinals
Second and third blocks	F	12 or 17 kins
Fourth block	G	(9 Eb or 1 Caban) missing
		(10 Tzec or 15 Tzec) missing

Gordon suggests the possibility¹ that the first block above was followed by the two blocks described below as Date 26. This hypothesis necessitates the assumption that the right third of the katun-glyph and the tun coefficient were recorded on a narrow block now missing. This would have been contrary to the general practice in the stairway of using longer blocks whenever possible. Moreover, his suggestion is open to the insuperable objection that the glyph-blocks of Date 26 are 5 cm. higher than those of Date 25. The two blocks on which the writer's Date 26 is recorded each have a ledge along the bottom (see Gordon, 1902, plate 13, N, and plate 12, D, fourth block), the one on which Date 25 is recorded being without such a ledge. Gordon offers an ingenious explanation for this difference, which, however, is unnecessary if the above arrangement is accepted.

DATE 26.

Date 26, however, is very similar in style and arrangement to Date 25. It has the same large head-variant period-glyphs with bar-and-dot coefficients to the left, each period occupying an entire glyph-block. (See plate 26, *e*; also Gordon, 1902, plate 13, N, and plate 12, D, fourth block). Date 26, what little is left of it, is presented upon two consecutive stones and records ? tuns 16 uinals and 5 kins. Both ends of both blocks are smoothed for fitting against each other and adjoining blocks, the latter now missing. As it stands, nothing further can be done in deciphering this Initial Series other than to say that the day-sign must have been Chicchan and the month coefficient 3, 8, 13, or 18. There is, however, a stone in the Peabody Museum (see figure 41) which may record the terminal date of this Initial Series. (Catalogue No. C 858.)

¹ Gordon, 1902, p. 184.

Parts of two consecutive glyph-blocks are preserved (see figure 41), recording 6 Chicchan 3? The break occurs just after or perhaps in the middle of the month coefficient. Chicchan is a very rare day-sign, and its record here immediately suggests that it may be the missing terminal date of Date 26. Assuming for the moment that it is, and that the month coefficient is 3, and not 8, 13, or 18, we will have 9.?.?.16.5 6 Chicchan 3? It can be found by calculation that there are only eight places in Cycle 9 where such a date could have occurred, namely:

9.2.19.16.5	6 Chicchan 3	Kankin	9. 9. 9.16.5	6 Chicchan 3	Cumhu
9.5.11.16.5	6 Chicchan 3	Pop	9.12. 1.16.5	6 Chicchan 3	Tzec
9.6. 4.16.5	6 Chicchan 3	Pax	9.15. 6.16.5	6 Chicchan 3	Yaxkin
9.8.16.16.5	6 Chicchan 3	Zip	9.18.11.16.5	6 Chicchan 3	Chen

All of these lie within the extremes of dates recorded elsewhere on the stairway, except the first and last. Of the remaining six, all but the last can probably be eliminated on stylistic grounds, the style of the glyphs placing this Initial Series in the second or later group. There is another point, moreover, which tends to support this reading. The missing tun coefficient is probably under 11 and above 5, judging from the width of the uinal block following. If true, this eliminates all but the seventh reading: 9.15.6.16.5 6 Chicchan 3 Yaxkin.

The size of the glyph-blocks rather supports the idea that this fragment is a part of Date 26. The glyph-blocks of Date 26 are unusually wide, 38 cm. The width of the incomplete glyph-block in figure 41 presenting 6 Chicchan is 35 cm., but the face on the left requires from 2 to 3 cm. to complete it. When this is supplied, the glyph-blocks in the two stones are of about the same widths. The heights of the glyph-blocks are also the same, and this block has the same ledge along the bottom as the other two pieces of Date 26. If these three pieces fit together, the resulting date is not without interest, being only 39 days later than the important Date 23.

Date 23 9.15.6.14. 6 6 Cimi 4 Tzec

1.19

Date 26 9.15.6.16. 5 6 Chicchan 3 Yaxkin

Again, this same month-glyph, 3 Yaxkin, is recorded to the left of the crouching figure, which has the Initial Series introducing glyph of Date 28 following it. (See Gordon 1902 plate 12, E, first, second, and third blocks.) Possibly this may be a repetition of Date 26 or *vice versa*, as seen between Dates 2 and 3, or 4 and 5, for example. The chief objection to this reading is the fact that the head in the left half of this glyph-block (see figure 41) bears no resemblance to the last glyph of the Supplementary Series, as it probably would if these pieces belong to the same date. Although this assemblage is doubtful, it may well be that these several fragments originally fitted together, and, if so, the reading suggested is possibly correct.

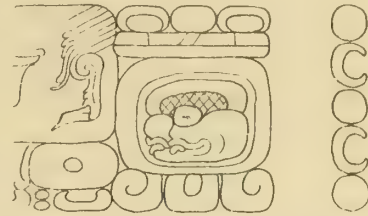


FIG. 41.—Part of Date 26 (?) from the Hieroglyphic Stairway.


DATE 27.

Date 27 is even more fragmentary than Date 26. It is similar in style and arrangement to Dates 25 and 26. Only one stone of it has been found, which shows 5 kins 7 Caban. (See plate 26, *f*, and Gordon, 1902, plate 12, *A*, sixth block.) However, since the day-sign is Caban, the kin coefficient must have been 17, that is two more bars and two dots to the left of the one on this block.

It might be objected that since the Initial Series introducing glyphs are missing in Dates 25, 26, and 27, it is not safe to regard them as Initial Series. This objection, however, can not be sustained. If the periods, particularly in Dates 25 and 26, are not parts of Initial Series, the only other kind of count they could have belonged to is a Secondary Series. But Secondary Series are always presented as ascending, not descending, series, as in these dates; that is, in reading from left to right and top to bottom, the kins are recorded first, then the uinals, then the tuns, etc., the orders increasing from left to right.¹ The order in Initial Series, on the other hand, is just the reverse, namely, the same as in Dates 25 and 26 and probably in Date 27 also. It is therefore certain that Dates 25, 26, and probably 27 are parts of Initial Series and not parts of Secondary Series.

DATE 28.




Gordon figures an Initial Series introducing glyph (1902 plate 12, *E*, third block) which he states came from higher up the slope than the topmost step of section *fg*, figure 37. Consequently its corresponding Initial Series must have been on a higher step than the step upon which dates 11, 12, 13, and 14 were recorded.



The style of the glyph is late. The tun element is of the late form.  The variable central element is a kin-sign. This glyph occurs just to the right of one of the crouching horizontal figures, *i. e.*, in the same relative positions as Dates 10 and 11. It is not impossible that this introducing glyph may have belonged with Date 26 or 27. It could not have belonged with Date 25, as the left side of this latter block, preserved in the Peabody Museum, shows a fractured surface, not dressed.

Numerous other fragmentary dates are scattered all over the court in front of Mound 26, the wreckage of the steps in sections *ex* and *yd*, figure 37. Little or nothing can be done with these. In some cases the days are missing, in others the months. An example of this kind occurs on a fragment figured by Gordon in his monograph on the stairway. (See Gordon, 1902, plate 12, *L*, sixth block.) This piece shows a part of the last glyph of the Supplementary Series, followed by the month 3 Mol. The most probable place for this to have occurred in Cycle 9, since it here ends a lahuntun, is 9.15.10.0.0 3 Ahau 3 Mol. Such a reading, though likely, can not be proved.

Another interesting date is part of a Secondary Series (see Gordon, 1902, plate 13, *D*), the kins of which are missing. The first piece begins with 4 or

¹For a discussion of this point, see Morley, 1915, pp. 128, 129.

7 uinals and then follow 15 tuns, 1 katun, and then in the next glyph but one, which is also the last, the day 7 Lamat. The day-sign is expressed by the Venus variant, shown as the full Venus sign . Other fragmentary dates occur here and there, but such readings as  might be suggested are purely speculative. Long-continued work on the  spot would undoubtedly result in the fitting together of some of these fragmentary dates, but anything like a complete restoration of the stairway now appears impossible, first because there seems to have been no regular sequence in the order of the glyphs after the Supplementary Series; secondly, because so many of the joints between the stones fall in the inter-glyph spaces.

Even an incomplete study of the fragments of this truly remarkable inscription, however, yields interesting results. Thus, for example, it is evident that artistic considerations weighed heavily in glyphic delineation here. Old practices and conventions were discarded in the effort to eliminate repetition and avoid monotony. On a block in the Peabody Museum already described in connection with Date 26 (see figure 41), the coefficient 3 is shown with two decorative elements on either side of the central dot , a unique example of its kind in the entire range of the Maya writing. Again, in the day coefficient of Date 27 (see plate 26, f) the number 7 is shown as two dots and one bar, but with two decorative elements flanking the dots, instead of one standing between, as in every other example of this number . These and other oddities of glyph delineation might be pointed out. They probably resulted from the desire to escape from monotony in the treatment of numerical elements, which in turn was prompted by esthetic considerations.

Before attempting to analyze the possible significance of the several dates deciphered above, let us first tabulate them (see page 266). The dates on the steps *in situ*, *ce*, figure 37, are given first, Nos. 1 to 10 inclusive. Then follow the dates on the steps in sequence but not *in situ*, *fg* (*i. e.*, *xy*), figure 37, Nos. 11 to 14, inclusive. Next come the dates on disconnected fragments lettered as *a* and *b*, those lettered *a* being from section *ex*, figure 37, and those lettered *b* being from section *yd*, figure 37, *i. e.*, from toward the top of the stairway.

CLASSIFICATION OF THE DATES.

An examination of the following table discloses at the outset that we have here two entirely different groups of dates, one early, the other late. The first group is composed of Dates 1, 2, 3, 4, 5, 7, 9, 15, 16, 17, and 18, all of which are in the Early Period; and the second, of Dates 8, 10, 11, 12, 13, 14, 21, 22, 23, 24, 25, and 26, all of which are in the Middle and Great Periods. Of the five remaining dates yet to be deciphered, three, Nos. 6, 19, and 20, on stylistic grounds doubtless belong to the early group, and two, Nos. 27 and 28, to the late group.

SUMMARY OF DATES ON THE HIEROGLYPHIC STAIRWAY.

Steps <i>in situ</i> .					
Date	I	Step D	Initial Series	9. 5.19. 3. 0 1. 5.15.18	8 Ahau 3 Zotz
2				9. 7. 5. 0. 8	8 Lamat 6 Mac
3		E	Initial Series	9. 7. 5. 0. 8 2. 9.16.17	8 Lamat 6 Mac
4				9. 9.14.17. 5	6 Chicchan 18 Kayab
5		F	Initial Series	9. 9.14.17. 5	6 Chicchan 18 Kayab
6				9. ? . ? . ? . ?	? ? ? ?
7		H		9. 6. 4. 7.19	9 Cauac 17 Yaxkin
9		K		9. 6. 4. 7.19 7.14. 9.10	9 Cauac 17 Yaxkin
8				9.13.18.17. 9	12 Muluc 7 Muan
10		K and L	Initial Series	9.13.18.17. 9	12 Muluc 7 Muan
Steps in sequence but not <i>in situ</i> .					
Date	11	Step P	Initial Series	9.15.12.10.10	10 Oc 3 Cumhu
12		Q		9.15. 5.10.10 6. 5.10	12 Oc 3 Pop
13		R		9.15.11.16. 0	7 Ahau 13 Tzec
14		S		9.15.11.16. 0	7 Ahau 13 Tzec
Disconnected fragments.					
15	(a)		Initial Series	9. 5.17.13. 7	2 Manik 0 Muan
16	(a)		Initial Series	9. 5.13. ? . ?	? ? ? ?
17	(a)		Initial Series	9. 5.10. ? . ?	? ? ? ?
18	(a)		Initial Series	9. 5. ? . ? . ?	? ? ? ?
19	(a)		Initial Series	9. 5. 6. ? . ?	? ? ? ?
20	(a)		Initial Series	9. ? . ? . ? . ?	? ? ? ?
21	(b)			9.13.10. 0. 0	7 Ahau 3 Cumhu
22	(b)			9.14.15. 0. 0 11.14. 6	11 Ahau 18 Zac
23	(b)			9.15. 6.14. 6	6 Cimi 4 Tzec
24	(b)		Initial Series	9.13. 3. 7. 8	1 Lamat 6 Chen
25	(b)		Initial Series	9.14.10.10.12	9 Eb 10 Tzec
26	(b)		Initial Series	9.15. 6.16. 5	6 Chicchan 3 Yaxkin
27	(b)		Initial Series	9. ? . ? . ? .17	7 Caban ? ?
28	(b)		Initial Series	9. ? . ? . ? . ?	? ? ? ?

THE EARLY GROUP.

Confining our attention at present to the first group, it will be seen that Nos. 15, 16, 17, and 18, which were found on disconnected fragments at the base of the stairway, are close in point of time to the dates *in situ*: Nos. 1, 2, 3, 4, 5, 7, and 9. The first four (and possibly No. 19) are in Katun 5, and the last seven begin at the close of Katun 5 (Date 1) and come down to the close of Katun 9 (Date 5), which is the next to last Initial Series on the stairway and the last in the early Period. It is probable, therefore, that Dates 15 to 18 originally came from steps not very far above those now *in situ*, namely, from the lower part of section *ex*, figure 37. There is some evidence in support of this hypothesis in the Peabody Museum photographs, where Dates 15, 16, and 17 are shown on three different blocks of stone arranged one above the other, as if on three *consecutive* steps, Date 15 being the lowest, Date 16 next, and Date 17 on top. One photograph in particular, No. 385, taken during the course of the excavations, shows that when these several blocks were removed they were placed nearest the base of the stair-

way in the court below, in fact only one step, Step N of section *fg*, being between them and the débris at the base of the stairway before the latter was cleared away. The inference would appear to be that they had been removed from just above the steps now *in situ* and originally had come from very near this position; that is, they were the *left* ends of steps just above *e* in figure 37. That they were the left ends of three *consecutive* steps seems probable from the fact that the photograph shows them arranged one on top of another in front of the *left* balustrade, as well as the fact that all three begin with Initial Series introducing glyphs.

The chronological evidence and the parallel in the presentation and style of these three dates when compared with Dates 1, 3, and 5, also Initial Series, are even more suggestive. We have seen that Dates 1, 3, and 5 occur on the left ends of *three consecutive* steps. Now, if the Peabody Museum photograph just mentioned shows the original arrangement of Dates 15, 16, and 17, this arrangement is identical with that of Dates 1, 3, and 5; and if the three former came from steps not far above the three latter, the chronologic sequence of the six is perfect and continuous, particularly between the first four, which then all fall in the same decade:

Section <i>ex</i> , figure 37	{	Date 17	9.5.10 ¹ .	?.	?
		Date 16	9.5.13 ² .	?.	?
		Date 15	9.5.17.	13.	7
Section <i>ce</i> , figure 37	{	Date 1	9.5.19.	3.	0
		Date 3	9.7.	5.	0.8
		Date 5	9.9.14.	17.	5

In this arrangement there is actually less than two years difference, *i.e.*, 1.7.13 (513 days), between Dates 15 and 1; and it gives rise to a continuously ascending series of dates, from top to bottom.

The next dates, 18, 19, and 20, occur on three scattered blocks. It will be shown presently that, stylistically considered, they very closely resemble Dates 1, 3, 5, 15, 16, and 17, so much so in fact that it seems probable they also must have come from the same part of the stairway. No. 18, the only one even partially datable, probably came from above Nos. 15, 16, and 17 on the stairway, since it hardly seems likely that three or even one Initial Series occurred between dates so close together in point of time as Nos. 15 and 1. The best position for Nos. 18, 19, and 20, therefore, would appear to have been at the left ends of steps not far above the step on which Date 17 was inscribed, Date 18 in particular almost certainly coming from such a position.

It has just been shown that Dates 15, 16, and 17 probably came from immediately above the steps now *in situ*. We have also seen that of the 15 steps now *in situ*, three consecutive ones begin with Initial Series which

¹ The tun coefficient of Date 17 is twice as thick as the katun coefficient, which is 5. If its numerical elements had the same width, therefore, it could not have been above 10, and the best reading is 10.

² The tun coefficient of Date 16 must be either 13 or 18. Two bars and three dots show on the piece preserved, there being the possibility of another bar on the adjoining piece, now lost. It would be more natural, however, to have carved the coefficient all on one block, and 13 therefore is the preferable reading.

stand between two sets of six steps each, none of which begins with an Initial Series. Assuming for the moment that this establishes an approximate proportion of the two which will hold for the rest of the stairway, we can suppose twelve non-Initial Series steps went with the three steps presenting Dates 15, 16, and 17; and on the grounds of chronologic proximity, that all fifteen steps of this section probably came from just above the steps *in situ*, *i.e.*, from the lower half of *ex*, figure 37. We have seen further that Dates 18, 19, and 20 probably came from just above Dates 15, 16, and 17, and allowing for this trio of Initial Series steps, the same number of non-Initial Series steps as above, we will have another fifteen steps reaching above the fifteen steps containing Dates 15 to 17, as coming from the upper half of *ex*, figure 37. This makes a total of 45 steps for the dates of the early group, or about *half* the stairway. Moreover, if the proportion of steps beginning with Initial Series to those not beginning with Initial Series, found in the steps *in situ* at the base, obtains elsewhere on the stairway, we may conclude that the dates of the early group were all recorded *on the lower half* of the stairway. And further, judging from the parallel afforded by Dates 1, 3, and 5 in section *ce*, it seems not unlikely that Secondary Series at the right halves of the thirty steps in section *ex*, connected the 6 Initial Series at their left ends, one with another.

In addition to the chronologic proximity and the probable positional proximity of these several dates, however, they present close stylistic affinities, which indicate that all came from the same part of the stairway, and that part probably the lower half. These stylistic criteria are:

1. *Treatment of the Initial Series introducing glyph*.—All of the same type. Tun element early form, upper line curving, *i.e.*, concentric with top; double-lined elements in the lower part; sometimes with dots above and below.
2. *Arrangement*.—Always the same. The cycles and katuns in the second glyph-block; the tuns and uinals in the third; the kins and day in the fourth.
3. *Coefficients*.—Always bar-and-dot numerals usually placed above the signs they modify. The bars are thick and frequently show an inner double line.
4. *Period glyphs*.—The cycle-sign always the head-variant; the katun-sign always the normal form. The rest vary.

In these features the glyphs of the early Initial Series differ materially from those of the later Initial Series (p. 270), and on stylistic grounds alone it is necessary to place them in a different chronologic group than that of the later dates.

Summing up the evidence afforded by the presentation, style, chronology, and provenance of the dates of the early group, it is probable that *all* of them came from the *lower half* of the stairway; and all probably are to be assigned to Katuns 5 to 9 inclusive. Finally, since not one records either a hotun or tun ending like the stelæ, for example, it is inferable that they refer to actual astronomic or historic events which occurred during the Early Period.

THE LATE GROUP.

Coming to the later group, Dates 8, 10, 11, 12, 13, 14, 21, 22, 23, 24, 25, and 26, and probable 27 and 28, although the latter have not yet been deciphered, and are assigned here only on stylistic grounds, we find the earliest dates of this group are on the disconnected fragments, *i. e.*, originally from section *ex* or *yd*, figure 37, and in all probability, as we have just seen, from the latter. Chronologically considered, all fall in the latter half of the Middle Period or at the beginning of the Great Period. It is unfortunate that both the reading and the provenance of what is probably the earliest date of the group, No. 24, should be doubtful. It is easily one of the most important dates on the stairway, being expressed by the very rare full-figure glyphs; and its unique character in this respect must have gained for it a corresponding position of importance. Indeed, at one time the writer believed it was a part of Temple 26 on top of this mound, the high sanctuary reached by this magnificent stairway. The glyph-blocks, however, are just the height of the other steps of the stairway of which it doubtless is a part, and he now believes it may have been the beginning of the entire inscription, that is, it may have stood at the left end of the topmost step. Almost certainly it came from the upper half of the stairway.

The next date in point of time, No. 21, although not an Initial Series, has all the practical accuracy of one, being instead a lahuntun-ending which makes it exact within a period of some 19,000 years. It is 9.13.10.0.0 7 Ahau 3 Cumhu, the same date as Stela J, by which time, the writer believes, the laying out of the terraces around the Great Plaza was completed.

Eight years later, toward the close of Katun 13, occurs the first (or last) date on the stairway, namely, No. 10 on the bottom step. This is the only date of the late group on the steps *in situ*, or probably indeed on the entire lower half of the stairway, for which reason it is all the more important. Being on the first step built, it probably indicates the date on which the construction of the stairway was actually started. Gordon has already suggested this (1902, p. 185), but misreads the Initial Series as 11.13.9.14.9 12 Muluc 7 Muan instead of 9.13.18.17.9 12 Muluc 7 Muan, making a corresponding difference of nearly 800 years in the age of the stairway and assigning it to a period now known to have been long subsequent to the abandonment of the city. The first step actually begins with the terminal day of this Initial Series, 12 Muluc.

Katun 14 is represented by two dates, Nos. 22 and 25, the former being the starting-point of the Secondary Series leading to the highly important date 9.15.6.14.6 6 Cimi 4 Tzec, of possible historical significance. The three doubtful dates, Nos. 26, 27, and 28, may probably be referred to the early part of Katun 15.

It is important to note that the three latest dates yet found on the stairway, Nos. 13, 14, and 11—the last, an Initial Series 9.15.12.10.10, being the latest—are found in section *fg*, figure 37, *i. e.*, on steps in sequence but

not *in situ*. It is therefore a matter of first importance to determine the original position of this section *fg* in the stairway.

It has already been shown that the dates of the early group probably were inscribed on the lower half of the stairway; if this is true, section *fg*, figure 37, must have come from the upper half, but if so, from what part?

Gordon says that in its downward course the top step of this section, M, (*g*, figure 37) came to rest at a point 17 meters from the ground below, presumably measured on the slope.¹ Section *fg* occupied some 5 to 6 meters on the slope of the original stairway, and, as we have seen, in all probability came from somewhere in the upper half. Its topmost step, M, therefore (found 17 meters above the ground) must have slipped down at least 7 or 8 meters. That is, Step M originally came from at least 5 or 6 meters above the half-way point, which was itself 19 meters above the ground; consequently Step M must have slipped at least 7 or 8 meters. The first date in this section, No. 11, on Step P, is also the latest known on the stairway. This fact alone may indicate that it came from near the top, but to answer this question it is necessary to ascertain how near the top Step M stood.

The date on which the stairway was completed or, perhaps better, dedicated, that is, put into formal use, as will be explained later, was probably 9.16.5.0.0, some 12 years later than Date 11; but we may doubtless suppose that other later dates very near the top of the stairway, and thus the last to be inscribed, bridged this gap.

If the same proportion of Initial Series steps to non-Initial Series steps obtains for the upper half of the stairway as that suggested for the lower, we may perhaps say section *fg*, figure 37, came from the lower part of the upper half of the stairway, *i. e.*, from position *xy*. Indeed, weighing all the evidence, how far this section could have fallen without the blocks losing their relative positions, the number of Initial Series found, and finally the character of the dates, the writer regards it as probable that section *fg* originally stood just above the middle of the stairway.

That the Initial Series of the later group should be classed together on stylistic grounds, as well as on the basis of chronologic proximity and probable proximity of position, is apparent from the following stylistic analysis of their glyphs:

1. *Treatment of the Initial Series introducing glyph*.—All of the same type. Tun element late form, two main lines of tun-sign, parallel and horizontal. Single-line elements in bottom.
2. *Arrangement*.—Usually the same, each period occupying a full glyph-block.
3. *Coefficients*.—Usually the same, bar-and-dot numerals, rarely head-variants, sometimes above, sometimes to the left.
4. *Period-glyphs*.—Always head-variants.

A comparison of these characteristics with those of the glyphs of the early group on page 268 will show that the division into two groups on stylistic grounds is amply justified.

¹ Gordon, 1902, p. 154.

DATE OF THE HIEROGLYPHIC STAIRWAY.

It has been mentioned that 9.16.5.0.0 8 Ahau 8 Zotz was the date on which the Hieroglyphic Stairway was probably completed or at least formally dedicated. The basis for this statement is the fact that Stela M, which was obviously correlated with its base (see plate 6), was erected on this date.

Gordon, in his monograph on the stairway, describes this monument in such a way as to leave little doubt as to this correlation.

"In line with the center of the Hieroglyphic Stairway and at a distance of fifteen feet [4.57 meters] in front of it stood Stela M, one of the most elaborately and delicately carved of all the stelæ at Copan. This stela and its altar are so associated with the stairway that a description of them will be given in this connection."¹

And again:

"The center of the stairway was located with special reference to the position of Stela M"²

After Stela D (9.15.5.0.0) there is a gap of 20 years during which no large monuments appear to have been erected at Copan, with the possible exception of the hieroglyphic steps on the south side of Mound 2, the date of which is by no means certain. (See pp. 233, 236.)

At the end of this period of apparent sculptural inactivity, Stela M was erected at the base of, and apparently correlated with, the Hieroglyphic Stairway. It is evident from the technique of the carving of the glyphs and decorative elements that the stairway, regardless of the many early dates recorded upon it, must have been built in the Great Period, and the hiatus in the sequence of the dated monuments from 9.15.5.0.0 to 9.16.5.0.0 strongly indicates that it was being built at this time. Finally, when we find that the monument, correlated with its base, closes this hiatus in the sequence of the monuments, the inference is that the stairway was completed and dedicated at the same time as this monument, namely, 9.16.5.0.0.

Owing to Gordon's misinterpretation of Dates 10 and 11,³ he has been led astray in his resulting conclusions concerning the age of the Hieroglyphic Stairway.⁴ To begin with, he incorrectly deciphers the important Date 10, which he believes was the date of the erection of the stairway,⁵ a view also shared by the writer (see p. 269). This he reads as 11.13.9.14.9 12 Muluc 7 Muan, a highly improbable, if not indeed an impossible date from a historical point of view. As already pointed out (p. 250, note 1), no other Cycle 11 Initial Series is known in the Old Empire; indeed, the reading he suggests is some 700 years later than the latest known date at Copan, and some 600 years later than the latest date at any other of the Old Empire cities. Copan was almost certainly abandoned at least 600 years before this date; and if the writer's date be accepted, Stela M, instead of being 735 years earlier than the stairway with which it is correlated, will be only 13

¹ Gordon, 1902, p. 164.

² *Ibid.*, p. 186.

³ According to Gordon's numeration this is Date 6. See Gordon, 1902, p. 178.

⁴ See *ibid.*, pp. 173-176.

⁵ See *ibid.*, p. 185.

years later than the stairway's latest existing date, *i. e.*, Date 11, a decidedly more natural relationship.¹

His interpretation of Date 11, moreover, carries him even farther afield. He offers five possible readings, between the extremes of which is the stupendous period of over 325,000 years. His nearest possible reading before the earliest surely deciphered date at Copan (9.2.10.0.0 on Stela 24) is more than 140,000 years earlier, while his nearest possible reading after the latest date now known (9.18.10.0.0 on Altar G₁) is more than 41,000 years later. These values cover such vast ranges of time that they may well be viewed with suspicion, especially since other readings have been suggested which do not develop such historical improbabilities. Indeed, resting the case against his interpretation of these two dates on historic grounds alone, it is clear that they are not only extremely improbable, but actually impossible.

SUMMARY OF THE CHRONOLOGY.

If the writer's interpretation of this text be accepted, its chronology may be summarized as follows:

Perhaps as early as 9.13.18.17.9 12 Muluc 7 Muan (Date 10) the building of the Hieroglyphic Stairway was either commenced or projected. At least, when the work was started, it was particularly desired to memorialize this date, which was done by making it the first Initial Series of the new inscription. Next the record goes back nearly 200 years earlier, *i. e.*, to Katun 5, and in the lower half of the stairway at least nine Initial Series treat of a number of events (Dates 1 to 9 and 15 to 20) in the early history of the city. Finally, after a hiatus (?)² of about 70 years, the record comes down to more recent matters, and in a series of a dozen or more dates (Dates 11 to 14 and 21 to 28), of which 6 are Initial Series, it treats of events during the construction of the stairway. This makes a total of 16 Initial Series now known for the entire stairway, 10 from the lower half and 6 from the upper half. It must be assumed, however, that a few, particularly from the upper half of the stairway, have been lost, mutilated beyond all recognition when the upper steps crashed to the bottom, but probably not more than 8 or 10 all told. An estimate of 25 Initial Series for the entire stairway appears conservative.

It was during the period of Dates 11 to 14 and 21 to 28, perhaps in 9.14.13.4.17, that the neighboring city of Quirigua seems to have been founded, and as early as 9.15.6.14.6 some event had taken place which was of sufficient importance to find its way into the records of both cities. We may perhaps venture the opinion that this event was of greater importance to the inhabitants of Quirigua than it was to those of Copan, since it appears four times at the former city as compared with but once at the latter. Some time toward the close of the Middle Period, Quirigua seems to have been

¹ Gordon himself suggests that the correlation of Stela M with the stairway would tend to indicate that both belong to the same period, were it not for his readings of Dates 10 and 11: "From its association with the stairway, one would be led to suppose that this stela belonged to the same period, but it is otherwise." (Gordon, 1902, p. 185.)

² Other now missing dates may have filled this gap formerly.

founded, probably by emigrants from Copan, and shortly after its foundation it again came into contact with the mother-city in such a way as to have occasioned comment on the monuments of both.

This important date will bear further elaboration. The writer has shown elsewhere (Morley, 1915, pp. 239, 240) that 9.14.13.4.17 12 Caban 5 Kayab is the earliest date at Quirigua which it is safe to regard as referring to an event in the history of the city.¹ It is, moreover, the earliest date on four different monuments there, Stelæ J, F, and E, and Zoömorph G, being recorded on Stelæ F and E as the Initial Series. The second katun anniversary of this date, 9.16.13.4.17 8 Caban 5 Yaxkin, is also recorded as an Initial Series on Stela D. In short, four of the fourteen large monuments at Quirigua are clearly connected with this date, and a fifth with its second katun anniversary. (See the accompanying table, where X signifies the presence of the corresponding date to the left, on each monument.)

Date.	Stela J.	Stela F.	Stela E.	Zoömorph G.	Stela D.
9.14.13. 4.17 12 Caban 5 Kayab.....	X	X	X	X	
9.15. 0. 0. 0 4 Ahau 13 Yax.....		X	X		
9.15. 5. 0. 0 10 Ahau 8 Chen.....	X		X		
9.15. 6.14. 6 6 Cimi 4 Tzec.....	X	X	X	X	
9.15.10. 0. 0 3 Ahau 3 Mol.....		X			
9.16. 5. 0. 0 8 Ahau 8 Zotz.....	X				
9.16.10. 0. 0 1 Ahau 3 Zip.....		X			
9.16.13. 4.17 8 Caban 5 Yaxkin.					X
9.16.15. 0. 0 7 Ahau 18 Pop.....					X
9.17. 0. 0. 0 13 Ahau 18 Cumhu.....			X		
9.17.15. 0. 0 5 Ahau 3 Muan.....				X	

From this table it appears that, having started with this date, a Secondary Series in each case brings the count forward to the date 9.15.6.14.6 6 Cimi 4 Tzec, which we have seen is the same as Date 23 of the Hieroglyphic Stairway. The latter must indeed refer to an important event of ancient Maya history in order to have found its way into the records of both cities. But what was its nature? Was it some extraordinary astronomical phenomenon, or does it signalize some particularly vital point of historical contact between the two cities? Since 9.14.13.4.17 is the earliest historical date at Quirigua, the writer has assumed it may indicate the foundation of the city. But if so, why should a second date, some thirteen years later, have been so conspicuously memorialized? As yet we can not say. Indeed, the most we may venture in this connection is to note the fact that it was sufficiently important to have been recorded at both cities.

¹ There are only two earlier dates at Quirigua, both on Stela C, 13.0.0.0.0 4 Ahau 8 Cumhu, and 9.1.0.0.0 6 Ahau 13 Yaxkin. The former is certainly hypothetical, being some 3,500 years before the first historic epoch of the Maya civilization. Indeed, it is nothing more than the record of the starting-point of the Maya chronological system, a purely hypothetical date. (See Morley, 1915, pp. 60-62.) The second date is nearly 300 years earlier than the earliest monument now known at Quirigua, and for this reason it can hardly refer to an event which took place during the occupation of the city. It is possible, on the other hand, that it refers to some earlier event in the history of the tribe or nation who built Quirigua, which had occurred a long time prior to the actual foundation of the city, and is, in fact, only 10 years older than the oldest possible date at Copan, namely 9.1.10.0.0 on Stela 20.

Returning to the Hieroglyphic Stairway once more, we find that we are nearly at the end of our decipherable dates, Dates 26 (?), 13, 14, and 11 following 9.15.6.14.6 in less than six years. Doubtless, as already suggested, other dates, now missing, filled the remaining thirteen years the stairway was under construction. And finally, in 9.16.5.0.0 the stairway was probably completed and put into formal use along with Stela M, the first hotun-marker that had been erected for twenty years.

The almost total destruction of this magnificent inscription constitutes a well-nigh irreparable loss to the student of the Maya hieroglyphic writing. It was an epitome of the principal events which befell one of the greatest Maya cities during the greatest period of the Maya civilization. Whether these events are of an historical nature, as we all hope, or whether they record the more abstract phenomena of astronomy, as yet remains in doubt. Judging from the tenor of the deciphered glyphs, it must be admitted that the second explanation appears the more likely at the present time. However, the writer believes that while much of the data recorded in this inscription, indeed in all the Maya inscriptions, must necessarily be astronomic, some historical residuum, however small, still awaits the decipherer, and that eventually this text, as well as most others, will be found to contain some fragment of ancient Maya history.

TEMPLE 26.

Provenance:	On the summit of Mound 26, of the Acropolis, Main Structure, now entirely destroyed. (See plate 6.)
Date:	9.16.5.0.0 8 Ahau 8 Zotz' (?)
References:	Gordon, 1902, pp. 153, 154, 163, 166, 167. Maudslay, 1889-1902, vol. I of text, p. 30

Not a vestige, even a foundation-stone, of Temple 26 remains *in situ*. Says Gordon in this connection:

"In its present condition the pyramid rises almost to a point, leaving apparently but little space on top for a building, but as the top has been reduced in size by landslides, and building stones as well as sculptures were found overlying the slopes, and the level ground below, there is every reason to believe that a building of some sort once stood there, though not a trace of it remains in position."²

Maudslay, however, offers more positive evidence of the former existence of a structure on the summit of this mound, having found several beveled stones, so highly characteristic of Maya roof construction, lying on its slopes.³

There is no doubt, indeed, but that many of the elaborately sculptured stones found not only in the débris at the base of the Hieroglyphic Stairway, but also scattered in the court just in front of it, came not from the stairway itself, but from some construction on the summit of Mound 26.

Gordon believes the great macaw heads (Gordon, 1902, plate 13, s, and pp. 18, 19) found in the court in front of, and not *underneath*, the débris of

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² Gordon, 1902, pp. 153, 154.

³ Maudslay, 1889-1902, vol. I of text, p. 30.

the fallen steps, were from the façade of this temple rather than from the stairway proper. In the same vicinity he found fragments of several pairs of large claws "clearly representing those of some bird of the parrot family," and doubtless many of the other striking sculptures found at the base of the stairway once embellished the façade of Temple 26, which must have been one of the most magnificent buildings in the city.

Our interest in Temple 26 in the present connection centers in an inscription which seems to have been inscribed upon its door-jambs. Gordon figures one block¹ of this, which he says was found near the summit of the mound, and which he believes may have formed part of a hieroglyphic frieze around the temple. He also figures four other stones from the same inscription which are described in his monograph as "Sculptures from the Hieroglyphic Stairway,"² Twenty-one or twenty-two fragments of this text are now in the Peabody Museum at Cambridge, Massachusetts; another piece is in the American Museum of Natural History at New York; and fifteen to twenty others are in the Museum of the Normal School at Tegucigalpa, Honduras.

The provenance of the fragments in the Peabody Museum, as established by the entries in the museum accession book, is as follows: Nos. 874 to 882, brought back by the Second Expedition, 1892-93, are from the eastern side of Mound 26, and Nos. 795 to 810, brought back by the Fourth Expedition, 1894-95, were excavated in the angle formed by the eastern slope of Mound 26 and the northern slope of Temple 22. Of these forty-three blocks in all three places, some five or six do not belong to this text.

By referring to plate 6, it will be seen that the provenance of the two groups of fragments at the Peabody Museum is practically identical. Stones falling from the back wall of Temple 26, if they rolled far enough, would reach the angle between the substructures of Temples 26 and 22.

What seems to have happened is this: The Second Expedition picked up the surface finds on the eastern slope of Mound 26, *i. e.*, Nos. 874 to 882, all those figured by Gordon, and later, when the angle between the substructures of Temples 26 and 22 was excavated, Nos. 795 to 810 came to light.

The discovery of Nos. 874 to 882 on the eastern slope of Mound 26, and one of them, No. 875, from near the summit (Gordon, 1902, p. 19), proves that the remaining fragments Nos. 795 to 810 found buried below in the angle between Temples 22 and 26 originally came from Temple 26 and not Temple 22. In plate 6 the original position of this inscription is shown as having been on the jambs of the *west* and *east* doorways of Temple 26, but owing to the total destruction of the temple, this position, though probable, is not certain. To begin with, the writer can not agree with Gordon that these blocks were originally part of a hieroglyphic frieze around the temple. In 1915 he fitted four of these stones together, and found that the inscription

¹ Gordon, 1902, plate 13, T. This piece is now in the Peabody Museum, catalogue No. C. 875.

² *Op. cit.*, plate 15.

was apparently a vertical panel rather than a horizontal frieze.¹ Another vital objection to Gordon's view is that these stones were found only on one side of Temple 26. It seems certain that if this text had originally gone clear around the building, a few fragments at least would have been found on one of the other three sides.² This same objection may be made to the writer's placing glyph-panels in the doorway on the *west* side of the temple. His reason for so doing, however, will appear presently.

In Temple 11 we have a presentation identical with that suggested here for Temple 26. Temple 11 faces to the north and has a corridor passing through the middle and emerging at the back (south). Both jambs of both of these doorways are inscribed with panels of four columns of glyph-blocks each. The panels are 71 cm. wide and at least 81 cm high. They were obviously sculptured after the walls were built, as the individual glyph-blocks sometimes extend over several different stones without any effort apparently having been made to make the horizontal or vertical inter-glyph channels coincide with the edges of the stones. This same feature is observed in the fragments under discussion, probably from Temple 26, and the parallel afforded by Temple 11 is so close that the writer believes it explains the original location of these blocks. (See pp. 309-310.)

The reason for believing that the *west* doorway was treated in the same way as the east one, in spite of the fact that no inscribed blocks of this character have been found on the western side, is because Temple 26 faced west, and it is almost inconceivable that a back doorway should have had this more elaborate treatment than a front doorway and main entrance, especially one approached by such a magnificent construction as the Hieroglyphic Stairway. Moreover, the parallel afforded by Temple 11 would tend to indicate that both doorways were similarly treated. Probably Temple 26 fell to pieces long before the Hieroglyphic Stairway collapsed; if so, the blocks in the front doorway may have been literally ground to pieces when the tremendous amount of stone in the upper four-fifths of the stairway crashed to the bottom. At all events, with the limited evidence available, it seems not improbable that the blocks in question are fragments of glyph-panels which were inscribed on the jambs of the front and back doorways of Temple 26.

Concerning the inscription itself little can be said. The glyphs are all of the full-figure variety, and judging from the fragments recovered this inscription must have been one of the longest of its kind ever attempted. Unfortunately, it is not only too fragmentary, but the signs are too unfamiliar to permit even partial decipherment.

As already mentioned, although the Peabody Museum has twenty-one or twenty-two pieces of this text, the writer was able to fit together only

¹ A hieroglyphic cornice originally ran all the way around Structure 1 at Quirigua, excavated by the writer in 1912 for the School of American Archaeology. (See Hewett, 1912, pp. 168, 169, and Morley, 1912, p. 57, and 1913, pp. 347 and 352.) In this case, however, the fragments of the cornice were found on all *four sides* of the temple, and were clearly parts of a horizontal frieze and not a vertical panel.

² The Peabody Museum photograph No. 293 shows blocks Nos. 874 and 875 in the Court of the Hieroglyphic Stairway, but as the latter is known to have been found elsewhere (near the summit of Mound 26) the former also was probably not found here, but on the east side, as stated in the museum catalogue.

two sets of two each, Nos. 879 and 882, and Nos. 880 and 881. It is barely possible a few of the stones may show parts of an Initial Series, but the characters are so fragmentary that such an identification is hazardous.

A few of the stones show that some large design surrounded the glyph-panels proper; several great parrot (?) claws may be distinguished on one or two of the blocks. This is particularly true of some of the fragments in the Normal School at Tegucigalpa, where parrot-like claws may be distinguished. Two of the fragments at Tegucigalpa, which fit together, show the feet of a human figure placed 180° apart. On either side there are two glyph-blocks. It is unfortunate that fragments of the same inscription should be so widely separated as the several pieces of this mosaic, since it might be possible to fit others together if all were assembled.

Gordon, who took charge of the Second Expedition after Owens's death, and who was field director of the Fourth Expedition, appears to have brought back only the best preserved blocks, and it would seem as though there must be others to be found somewhere around the base of Mound 26. A search of the eastern slope of this Mound in 1916, however, failed to bring any more of them to light, and again we are left to deplore the destruction of another priceless text.

STELA M.

Provenance:	In front of the middle of the base of the Hieroglyphic Stairway of Mound 26, of the Acropolis, Main Structure, at the eastern end of the court of the same name. (See plate 6.)
Date:	9.16.5.0.0 8 Ahau 8 Zotz. ¹
Text, (a) photograph:	plate 28, <i>a</i> .
(b) drawing:	Gordon, 1902, plate 16, 2 and 3. Maudslay, 1889-1902, vol. 1, plate 74. Morley, 1915, figure 68, <i>b</i> .
References:	Bowditch, 1910, p. 101 and table 29. Goodman, 1897, p. 132. Gordon, 1896, pp. 35, 36. Gordon, 1902, pp. 164, 185, 186. Maudslay, 1889-1902, vol. 1 of text, p. 55. Morley, 1915, pp. 175, 176. Seler, 1902-1908, vol. 1, p. 752. Spinden, 1913, pp. 159, 162, and table 1. Stephens, 1841, vol. 1, p. 134. Thomas, 1900, pp. 785, 802.

Stela M now lies prostrate and broken in front of the Hieroglyphic Stairway of Mound 26, with which it was originally associated. Stephens describes it as "fallen and ruined" in his day,² and we may probably assume that it has been broken for at least several centuries. Gordon gives its exact position with reference to the stairway as "in line with the center of the stairway and 15' [4.57 meters] in front of it."³ The flat slab on which it rested, as well as the oblong blocks which supported it on four sides, are in place. The monument is 3.04 meters high and 76 cm. wide.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² Stephens, 1841, vol. 1, p. 134. In Stephens's nomenclature, Stela M is called Statue E. ³ Gordon, 1902, p. 164.

Underneath the monument was found a cruciform chamber, the axes of which are 2.95 meters long, 30 cm. wide, and 60 cm. high. The stela rested on a stone slab above the intersection of these axes. The north-and-south axis bears 20' west of true north and the other axis is at right angles to it. It is apparent, therefore, that the stela faced very nearly due west, *i. e.*, with its back to the Hieroglyphic Stairway. This chamber was opened in 1895 by the Fourth Peabody Museum Expedition and was found to contain thirty pieces of pottery of different types and workmanship (three being painted), a few rough pieces of jadeite, a small jar filled with black sulphide of mercury and covered with a shell (*Spondylus calcifer*), and a few fragments of stalactites.¹ The fact that this cache was found beneath Stela M makes it possible to refer the pieces of pottery which it contained to a period at least as early as the date of this monument, namely, 9.16.5.0.0. Such dated finds will ultimately prove of great value to the student of Maya ceramics in establishing the relative ages of different types. While it is not possible to fix the latest use of any given type found in such caches, we can fix a definite date before which it must have been in use.

Several of these foundation chambers have been found under fallen stelæ here at Copan, notably under Stelæ 7, 1, I, M, and C, all of which contained similar objects; and it is probable that the foundations of the standing stelæ, A, B, D, F, H, J, N, and P, will yield similar deposits when excavated.

Maler found caches of small eccentric shaped flints in the excavation of Stelæ 13 and 15 at Naranjo,² and Gann reports an almost identical find of flints under Stela 1 at Benque Viejo. (See plate 1.) This valuable chronological line of evidence in the study of Maya ceramics should not be overlooked, and in its very nature this practice is likely to be found much more widely distributed than at these three sites alone.

Returning to Stela M, its front or west face is sculptured with a human figure of heroic size, whose elaborate dress extends around the corners and completely covers the sides, as in the case of Stela D. The back has two columns of glyph-blocks surrounded by a beautiful design of rosettes and feather pendants, each column having 10 glyph-blocks or $10+10=20$ for the entire text. On the basis of this arrangement of the design it may be assigned to Class 6. The inscription commences with an Initial Series introducing glyph in A1 followed by an Initial Series in B1-A3a. This very clearly records the hotun-ending 9.16.5.0.0 8 Ahau 8 Zotz, as follows:

A1	Initial Series introducing glyph
B1a	9 cycles
B1b	16 katuns
A2a	5 tuns
A2b	0 uinals
B2a	0 kins
B2b	8 Ahau
A3a	8 Zotz

It will be noted that the month of the Initial Series terminal date "8 Zotz" follows immediately after the day in B2b instead of in the usual

¹ Gordon, 1896, pp. 35, 36.

² Maler, 1908a, pp. 97, 100, 101, and figure 19.

position, B4a after Glyph A, of the Supplementary Series. No reason, however, can be advanced to explain this reversal of the usual practice. At B7b u. h. "2 tuns" appear to be recorded and at A9a u. h., 1, 2, or 3 tuns. At B8b the day of the Initial Series terminal date "8 Ahau" is repeated, followed by another tun-sign. The last two glyph-blocks are completely effaced. As already explained, Stela M was probably erected to commemorate the hotun-ending on which the Hieroglyphic Stairway was completed or dedicated.

STELA N.

- Provenance: On the southern side of the Court of the Hieroglyphic Stairway just in front of the stairway leading to Temple 11 of the Acropolis, Main Structure. (See plate 6.)
- Date: 9.16.10.0.0 1 Ahau 3 Zip.¹
- Text, (a) photograph: Maudslay, 1889-1902, vol. 1, plates 76, 78, 80, 81.
Spinden, 1913, plate 19, 4 (front only).
- (b) drawing: figure 42.
Gordon, 1902, figures 23, 24 (hier. ped. only).
Maudslay, *ibid.*, plates 77, 79, 82, 83, a (hier. ped. only).
Morley, 1915, plate 26 and figure 58.
Stephens, 1841, frontispiece to vol. 1 and opposite p. 138.
Bowditch, 1910, pp. 101, 102, 186, and table 29.
- References: Galindo 1834, Appendix XI, p. 597.
Goodman, 1897, pp. 132, 133.
Gordon, 1896, p. 35.
Gordon, 1902, pp. 171, 181-185.
Maudslay, 1889-1902, vol. 1 of text, pp. 55-57.
Morley, 1915, pp. 248, 249.
Seler, 1902-1908, vol. 1, p. 756.
Spinden, 1913, pp. 157, 159, 162, and table 1.
Stephens, 1841, vol. 1, pp. 136-138.
Thomas, 1900, pp. 786, 787, 802.

Stela N stands at the southern side of the Court of the Hieroglyphic Stairway, in front of the middle of the stairway leading to Temple 11. (See plate 6.) It is 3.5 meters high, 1.27 meters wide, and faces both north and south,² there being a human figure of heroic size on each of these faces.³ There is a single column of 20 glyph-blocks on each of the narrow faces, making a total of 40 for the entire stela. Around the base of the monument there is a pedestal of four stones, each of which is inscribed with 8 glyphs, 32 in all. These, combined with the 40 on the stela proper, make a total of $40 + 32 = 72$ for the entire text.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² Three other monuments at Copan besides Stela N face in two directions, *i. e.*, have human figures on two opposite faces, namely, Stelæ 3, 5, and C. Stelæ C and 5 face east and west, and Stelæ N and 3 north and south. All four belong to Class 5 on the basis of this arrangement of their designs.

³ Stephens, who gives drawings of both these figures, falls into a curious error in assigning them to two different stelæ. The figure facing the court (*i. e.*, north) he calls the front of a Stela D, which he locates a short distance south of Stela M on the eastern side of the court. The other figure facing the mound (*i. e.*, south), which he calls C, he properly locates in the position of Stela N, and even refers to it in his description as the back. This confusion doubtless arose through a mistake in his field-notes, so that instead of having the two figures of one monument at C (*i. e.*, Stela N) he has two monuments at D and C. A comparison of the frontispiece of Stephens, 1841, vol. 1, and the plate fronting p. 138 with Maudslay, 1889-1902, vol. 1, plates 77 and 82 respectively, shows this error. See also Stephens, vol. 1, pp. 136-138, and his map facing p. 133, where he gives the height of Stela N as 3.96 meters and the width as 1.22 meters as compared with Maudslay's measurements of 3.35 meters high and 1.27 meters wide.

The inscription on Stela N opens at the top of the east side with an Initial Series introducing glyph at A1 followed by an Initial Series at A2-A7, A15. This records the date 9.16.10.0.0 1 Ahau 8 Zip, although in order to use the Initial Series number as it stands it is necessary to change the month coefficient in A15 from 8 to 3:

A1	Initial Series introducing glyph
A2	9 cycles
A3	16 katuns
A4	10 tuns
A5	0 uinals
A6	0 kins
A7	1 Ahau
A15	3 ¹ Zip

This error in the month coefficient, if error it is, is difficult to explain. At first sight it would appear as though the bar might be ornamental, making the coefficient 3 instead of 8, but a close examination of the original shows that such is not the case.

We have, then, an error on the part of the ancient sculptors, for the Initial Series number recorded, "9.16.10.0.0," will not lead to the terminal date recorded, "1 Ahau 8 Zip," and one or the other, therefore, must be wrong.


The terminal date recorded, 1 Ahau 8 Zip, occurred in Cycle 9 nearest the Initial Series number recorded, 9.16.10.0.0, at 9.16.4.17.0, but this is not at the end of a hotun. Moreover, its acceptance involves two extensive corrections in the original instead of one if we accept the Initial Series number as correct and the terminal date as wrong, namely, changing the two bars of the tun coefficient to four dots, and the zero of the uinal coefficient to three bars and two dots. For this reason, and also because of the fact that 9.16.10.0.0 is a hotun-ending, it is more than probable that the error here is in the month coefficient A15, which should be 3 instead of 8, which makes Stela N a regular hotun-marker, as the other would not. Finally, the lahuntun-sign itself is possibly recorded at B1.

Errors in the originals are so rare that it is only in such self-evident cases as the above that we should permit ourselves to make corrections. In this case, however, the number recorded will not lead to the date recorded, and it is necessary to presuppose an error somewhere. The correction suggested not only requires less change in the original than any other to make the record correct, but it is strongly indicated by internal evidence in the text itself. We may therefore accept with little hesitation 9.16.10.0.0 1 Ahau 3 Zip as the date of Stela N.

Attention should be called to the unusual form of the month-sign in A15. Only two other examples of this variant for Zip are known, both of which are also here at Copan.² Indeed, the writer has suggested elsewhere (footnote 1, p. 67) that all three of these monuments may be from the hand of

¹ The original incorrectly has 8.

² A2, Altar L, and v, on the reviewing-stand in the Western Court. It is unfortunate that in both these cases the calculations are not certain, although the readings suggested on pp. 290 and 323 respectively are probably correct. The practically certain identification of the month-sign on Stela N as Zip, and its close resemblance to these other two examples, tends to confirm these other readings.

the same sculptor; that this particular variant for Zip may be due to the personal equation of a single individual. The form of Glyph A of the Supplementary Series used here is also unusual,  being found in only two other texts, so far as the writer knows.¹ There are no other decipherable glyphs on the eastern side.

The western side of Stela N has one of the most remarkable Secondary Series known, consisting of six orders of periods: great-cycles, cycles, katuns, tuns, uinals, and kins, covering a range of over a hundred thousand years. Indeed, there are only two other monuments known—Stela 10 at Tikal and the tablet from the Temple of the Inscriptions at Palenque—which show numbers involving the use of six or more orders of time-periods.² These three numbers have such an important bearing on the question of how many cycles make a great-cycle in the inscriptions that the writer has treated them at considerable length elsewhere,³ and all that need be repeated here is the general conclusion reached there, namely, that, as in the case of all other Maya time-periods except the uinal,⁴ it took twenty of one order to

¹ Stela A here at Copan and Slab 6 of the Hieroglyphic Stairway at Naranjo. Attention has already been called to this irregularity on the former, p. 223, although no reason to account for it can be advanced. A reproduction of the other text will be found in Maler, 1908a, plate 27, A1a.

² A fourth possible occurrence in the inscriptions of a number composed of more than five periods is on a tablet formerly in the possession of Don Secundino Orantes in the city of Chiapa, 66 cm. high and 43 cm. wide figured by Brinton (1895, fig. 82, and pp. 138, 139). The front of this shows the head and torso of a human figure in profile, facing a column of seven glyphs, all of which are destroyed save the coefficients of the first two, 9 and 12 respectively. Could the two latter have been 9 cycles and 12 katuns of an Initial Series number? The back opens with a Secondary Series introducing glyph at A1 and apparently a Secondary Series of seven periods in B1-A4 as follows: 13.13.13.1.1.11.14, and the terminal date, 6 Chuen 9 Muan (?) in A5, B5. There is another Secondary Series introducing glyph at C2, another Secondary Series number of 1.19 (?) in B2, C3 and another terminal date, 5? 10 Xul, at C3, D3. Unfortunately the drawing published by Brinton is very poor, as for example, showing a uinal coefficient of 19 in B2, almost certainly an error, and it is impossible to connect either of these dates with either of the numbers recorded. The original seems to have disappeared. The drawing published by Brinton is in the Saville library at the Museum of the American Indian, Heye Foundation, New York City.

³ This question of the exact length of the time-period next higher than the cycle, usually called the great-cycle, has been much discussed, and is indeed of such major importance that the writer has devoted a considerable section of his *Introduction to the Study of the Maya Hieroglyphics* (Morley, 1915, pp. 107-127) to its presentation. So far as the picture-writing manuscripts are concerned, the codices, there is no room for doubt that 20 cycles were required to make one great-cycle. Förstemann (1906, pp. 228-233, 261-264), in his discussion of the serpent numbers on pp. 61, 62, 69 of the Dresden Codex, each of which is composed of six orders of time-periods, proved that the calculations there presented require 20 cycles to a great-cycle. His argument is so convincing, and is supported by the figures in the manuscript so remarkably, that in so far as the Dresden Codex is concerned the point has long since been generally admitted. In the inscriptions on the monuments, however, all the earlier writers (except Thomas), including Goodman, Bowditch, and Selser, have held that only 13 cycles were required to make one great cycle. Bowditch (1910, Appendix IX, pp. 319-321) marshals the facts in support of this view, to which he himself inclines, most clearly, and students are referred to his work for further information concerning this hypothesis. The writer, on the contrary, strongly disagrees with this view, and in the passage already cited (pp. 110-114) sets forth what he believes to be the true explanation of the apparently contradictory facts. The error seems to have arisen through mistaking the name of a cycle for its position in the great-cycle. There can be no doubt that the names of the cycles ran from 1 to 13 inclusive, a cycle 1 following immediately after a cycle 13. A parallel is seen in the sequence of the day coefficients, which run from 1 to 13 inclusive and then back to 1 again. Another parallel is afforded by the sequence of the names of the katuns in the *u kahlay katunob*. Had there been only 13 cycles in a great-cycle, moreover, the coefficient 13 never could have occurred with the cycle-glyph, since 13 cycles would have been recorded as 1 great-cycle instead. But several passages exist which show the cycle-sign with a coefficient above 13 but under 20. B13 on Stela N here at Copan and J11 on the west panel of the tablet from the Temple of the Inscriptions at Palenque, for example. A review of all the evidence, the writer believes, leads inevitably to the conclusion that there was no irregularity in the sixth term of the Maya numerical system, and that, like the fifth, fourth, and second, and also the seventh and the eighth, it also was composed of 20 units of the order next lower.

⁴ The only place where the Maya vigesimal system of numeration breaks down is in the third place—the tuns—where 18 instead of 20 units of the second place are required to make one of the third. As explained elsewhere (Morley, 1915, pp. 62, 63), this was probably due to the desire to make the third term conform to the length of the solar year as nearly as possible.

make one of the order next higher; hence there are 20 cycles in a great-cycle in the inscriptions, as well as in the codices.

The Secondary Series recorded at B10-B14 is composed very clearly of 0 kins, 0 uinals, 10 tuns, 19 katuns, 17 cycles, and 14 great-cycles, or 14.17.19.10.0.0 in the commonly accepted notation. The first points to be determined in deciphering this long number are: (1) its starting-point, and (2) the direction of the count. In regard to the former, one fact at least appears reasonably certain, that the Initial Series terminal date is either the *starting* point or *closing* date. Two conditions tend to establish this point: (1) the Initial Series terminal date 1 Ahau 3 Zip is the only date on the monument; and (2) the day 1 Ahau is actually repeated below the last glyph of the number at B16 with but one glyph intervening. It seems probable, therefore, that this number either stretches backward from 9.16.10.0.0 1 Ahau 3 Zip into the remote and doubtless, even to the Maya when they inscribed this text, mythological past, or that it reaches forward to an equally far distant and hazy future. Which did the sculptor intend here?

With but few exceptions, the overwhelming practice in Secondary Series is to count the number forward from some earlier date to the contemporaneous date of the monument or to some date anterior to it. Therefore, if the usual practice obtains in the present case, 14.17.19.10.0.0 is to be counted forward from some date in the remote past to 9.16.10.0.0, which the writer believes to be the case here. The whole Maya concept of time demanded that they should look forward and not backward. Their time-periods were recorded in terms of elapsed time, like astronomical hours, and the exigencies of such a system kept the ancient priests continually with their backs to the past. In the few prophetic texts which have been found, the future date was in no case more than 150 years off when it was recorded, and on the other hand, several Secondary Series and even Initial Series and Period Ending dates are known, recording dates so remote that they could only have been of mythological or astronomical significance even when they were inscribed.¹ If the overwhelming weight of antecedent probability counts for aught, this Secondary Series could only have been counted backward from 9.16.10.0.0, that is, forward from some date prior thereto. If this is true, as the writer believes, it is obvious that this number reaches back to a date far earlier than the starting-point of Maya Chronology. This, however, is by no means without parallel elsewhere, the Initial Series on the tablet in the Temple of the Cross at Palenque being another case in point.

The first question, therefore, in deciphering this date is, what was the number of the great-cycle in which Cycle 9 fell, and, so far as the writer knows, there is only one monument in the whole Maya area which indicates the current great-cycle of the historic period, namely, Stela 10 at Tikal.

¹ Dates of this character are the Initial Series on the Temples of the Cross, Foliated Cross, and Sun at Palenque; the Secondary Series on Altar 2 at Piedras Negras and on Stelæ N and C and Altar I', at Copan, and the period-ending date on Stela C at Quirigua. In all these cases much later dates designate the times these monuments were severally erected.

This point is indissolubly connected with the question of how many cycles formed a great-cycle, and in the passage already cited (Morley, 1915, pp. 107-127) this question is discussed at considerable length. It will be found there that the Initial Series on Stela 10 at Tikal fixes the current cycle of the first historical epoch (Cycle 9) as having been Cycle 9 of Great-Cycle 19 of Great-Great-Cycle 11, of Great-Great-Great-Cycle 1, and (possibly) of Great-Great-Great-Great-Cycle 1, in short, within a chronological system covering over five millions of years. If this is true, 9.16.10.0.0 1 Ahau 3 Zip, the Initial Series on Stela N is in reality 1.11.19.9.16.10.0.0 1 Ahau 3 Zip, and the starting-point of the number 14.17.19.10.0.0 on Stela N can be shown by calculation to have been as follows:

1 ¹ .1.11.19. 9.16.10.0.0	1 Ahau 3 Zip
14.17.19.10.0.0	backward
1 ¹ .1.11. 4.11.17. 0.0.0	12 Ahau 13 Pax

That is, this latter date was in Great-Cycle 4 instead of Great-Cycle 19, as most other dates, and thus was over 100,000 years earlier than the beginning of the historic period.²

The glyph following B16 is possibly a month-sign, perhaps 8 Chen, Yax, Zac, or Ceh. The writer, however, has been unable to connect it in any way with any of the foregoing calculations.

The conclusions of the earlier writers differ so greatly from the above interpretation that it may be well to review them here.

Goodman, after making the change in the month coefficient on the east side from 8 to 3 (already suggested) proceeds to discredit the accuracy of the Secondary Series at B10-B14:

"The reckoning is not only wrong but is absurd as well. The cycles run only to 13,³ and no such reckoning as 14.17.19.10.0.0 backward or forward from the initial date would reach 1 Ahau 8 Chen. But fortunately, despite all the blundering, we can see what the intention was. 1 Ahau 8 Chen begins the 17th katun of the 8th cycle and thence to the initial date is just 19 katuns and 10 ahaus."⁴

Goodman means here that he regards B10-B12 as a Secondary Series composed of 0 kins, 0 uinals, 10 tuns, and 19 katuns, *i. e.* 19.10.0.0, which is

¹ The great-great-great-great-cycle glyph and coefficient are doubtful. (See Morley 1915, pp. 125-127.)

² Lest such vast time conceptions arouse in the reader a feeling of disbelief in the accuracy of the conclusions responsible for them, the writer recommends an examination of the Initial Series of Stela 10 at Tikal, where some five millions of years are apparently recorded. (See Morley, 1915, pp. 114-127.)

³ The writer's dissent with this opinion has already been noted.

⁴ Goodman, 1897, p. 132. Goodman's name for the period of the third place is ahau instead of tun. He also calls the periods of the second place chuens instead of uinals. His reasons for this nomenclature follow: "The ahau is a period of 360 days—the sum of the days in the eighteen regular months—and derives its name undoubtedly from the fact that it always begins [*i. e.*, ends] with the day Ahau" (1897, p. 23). This reason is unsound, because of the fact that every Maya time-period above the kin, that is, the uinal, tun, katun, cycle, and great-cycle, etc., ended with a day Ahau; and any time-period therefore above the kin could with equal justification be called the ahau. However, the rejection of this term rests on firm historical grounds, as Bowditch has very satisfactorily demonstrated (1910, pp. 276, 277). He has shown that in the Books of Chilán Balam, native Maya writings of the sixteenth, seventeenth, and eighteenth centuries, the term tun is repeatedly used to designate the 360-day period, but never the word ahau. Concerning Goodman's use of the term chuen to designate the periods of the second order, he says: "I call this period 'chuen' because it is commonly designated by the character Landa gives as the sign for that day" (1897 p. 22). While admitting this resemblance, Bowditch cites sufficient historical evidence to prove that the 20-day period was called uinal rather than chuen (1910, pp. 275, 276). Goodman's terms for these two periods have not been adopted by later writers and, as used in this sense, may be said to have disappeared from the nomenclature of the science.

to be counted backward from the Initial Series terminal date 9.16.10.0.0 1 Ahau 3 Zip to reach the date 1 Ahau 8 Chen in B16-B17, declared further by B13 to be at the end of a Katun 17. And in support of his reading it must be admitted that if 19.10.0.0 is counted backward from 9.16.10.0.0 1 Ahau 3 Zip, a Katun 17 ending on the date 1 Ahau 8 Chen will be reached, viz:

9.16.10.0.0	1 Ahau 3 Zip
19.10.0.0	
8.17. 0.0.0	1 Ahau 8 Chen

Bowditch apparently follows Goodman here, though admitting at the same time that the unexplained error in the month coefficient and the presence of a glyph denoting 14 cycles¹ cause great uncertainty as to the meaning of this text.²

Goodman's interpretation is open to several vital objections:

1. To begin with, it leaves utterly unexplained glyph B14, which, so far as its position is concerned, follows immediately after B13 and before B15 without any break, and has every appearance of being a part of the same number as B13 and B15.
2. It requires that B13 be identified as 17 katuns, whereas the hand on the lower part of the face almost certainly indicates that it is 17 cycles instead. Moreover, the sign denoting katuns in B12, according to his own reading, is quite dissimilar to B13. If one is the katun-sign, the other, in all probability, is not.
3. It requires, moreover, a peculiarly un-Maya arrangement of the text, one indeed of which they could hardly have been capable. According to his reading, first comes a Secondary Series of 19.10.0.0; then a period-ending, Katun 17, without any accompanying ending-sign, however; next a glyph with a coefficient of 14, which he leaves unexplained altogether; and finally (one glyph intervening), the date 1 Ahau 8 Chen (the month-sign being very doubtful) ending what he believes to be Katun 17 of Cycle 8 in B13.

Such an interpretation does too much violence to the original text, since, so far as we can judge by inspection, there is no visible reason why B13 and B14 are not a continuation of the same number whose lower terms are expressed by B10-B12. Therefore, in spite of the fact that Goodman's reading develops the rather surprising coincidence that Katun 17 of Cycle 8 is just 19.10.0.0 prior to 9.16.10.0.0 1 Ahau 3 Zip, and that it ended on the date 1 Ahau 8 Chen, possibly the best reading of B16, B17, it has been rejected as not only at variance with the glyphs actually recorded, but as generally incompatible with Maya practice. Moreover, the record of the day 1 Ahau in B16 may well be, and probably is, simply a repetition of the day of the Initial Series terminal date (1 Ahau 3 Zip) to show that this date was also the terminal date of the above Secondary Series. And finally, the 8 Chen in B17 may not be a month at all, as the sign identified as Chen may possibly be the Cauac variant of the tun-sign.

This whole question has been thoroughly presented elsewhere (1915, pp. 114-127), and the reader is referred to this passage for further information

¹ This glyph, as shown by the writer (1915, p. 117), could not in any case be 14 cycles. It is probably 14 great-cycles, as we have already seen.

² Bowditch, 1910, p. 186.

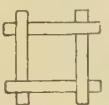
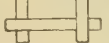
on the subject. It should be noted, however, before closing its discussion here, that the internal evidence afforded by the glyphs of this passage, particularly B14 identified by the writer as the great-cycle glyph, strongly corroborates the conclusions set forth above.

Thomas also rejects Goodman's reading here. He agrees with the writer in believing that all the six periods recorded in B10 to B14 are parts of the same numerical series—14.17.19.10.0.0—and that there were 20 cycles to a great cycle, instead of 13, which Goodman and Bowditch allow. He, however, disagrees with the writer in assuming that 1 Ahau 8 Chen was the closing-point of the count instead of 1 Ahau 3 Zip. In this way he gets 12 Ahau 13 Zotz as the starting-point, which he further states is "the first day of the sixth katun, the sixth cycle of his (Goodman's) fifty-fifth great cycle." If correct, this would make his starting-point for this Secondary Series more than 3,500 years later than the Initial Series of Stela N, and his terminal date more than 117,000 years later. Such readings as these may well be viewed with suspicion and constitute their own strongest refutation.¹

Seler sheds no additional light on this inscription, and indeed falls into a curious and unnecessary error concerning its Initial Series:

"As here [Stela C at Copan] so also there appears to be on Stela N at Copan, a mistake in reckoning or in signs. The given multipliers do not lead to the given day 1 Ahau at the end of the Initial Series, but to the day 10 Ahau. Perhaps one must read in the second positions [A3], $16 \times 20 \times 360$ (instead of $18 \times 20 \times 360$). In that case the addition would result in a figure which would be the difference between 1 Ahau 3 Zip and the norm date 4 Ahau 8 Cumhu."²

Apparently Professor Seler reads the katun coefficient, his "second position," as 18 instead of 16; but suggests that a change to 16 will reach the terminal date as recorded. This is indeed carrying coals to Newcastle, since A3 is clearly already 16 and not 18 katuns, as he seems to imply in the above passage.

Around the base of Stela N there are four bands of glyphs arranged thus:  each band having 8 glyph-blocks or 32 in all, which,  added to the 4 on the monument proper, make 72 for the entire text. These present two Calendar Round dates and a Secondary Series. (See figure 42.) One date begins the band of glyphs on the south side of the monument, the other begins the band on the east side, and the Secondary Series begins the band on the west side. The

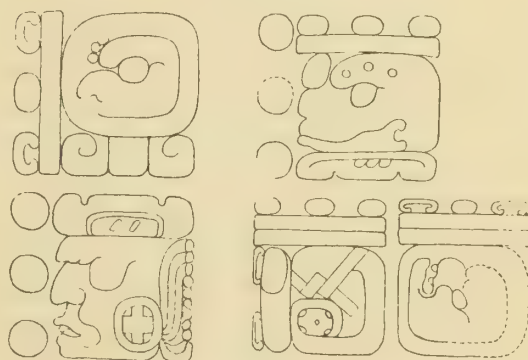


FIG. 42.—Part of inscription on pedestal of Stela N.

¹ Thomas discusses this text at some length (1900, pp. 786, 787, 794-797; and 1904, pp. 254-257), and although the writer can not agree with all his conclusions, it should be noted that he was the first to maintain that the great-cycle contained 20 and not 13 cycles.

² Seler, 1902-1908, vol. I, p. 756.

remaining band on the north side appears to begin with the day Kan, but neither its coefficient nor the corresponding month-sign can be found.

These two dates and the number are at the back of the monument, that is, on the two corners nearest Mound 11. This was probably due to the fact that as one faces the monument (*i. e.*, looking south) both the east and west bands will appear as vertical columns. Moreover, the first glyphs in both, *i. e.*, the southernmost in each band, are alike, and different from any others in the text.

Indeed, they are probably not glyphs at all, only formal decorative elements with which the two vertical bands of the inscription begin.



Facing the monument, then, this text would appear to commence at the top of the eastern band, the first two glyphs of which are 6 ? 3 Yaxkin, all being certain but the day-sign, which is a grotesque head. (See figure 42.) Unfortunately, each of the four day-signs possible here—Ahau, Chicchan, Oc, and Men—may be represented by a grotesque head, and our preliminary inspection therefore gives us little help. There are no other calendric glyphs on this side.

The question at once arises, what could this date have been. Filling in the four possible values of the day-sign, it will be found by referring to Goodman's tables that the four resulting dates occurred in Cycle 9 nearest the date of the accompanying stela, N, as follows:

9.15. 6.16. 5	6 Chicchan 3 Yaxkin
9.16. 0. 1.10	6 Oc 3 Yaxkin
9.16.13. 4.15	6 Men 3 Yaxkin
9.17. 6. 8. 0	6 Ahau 3 Yaxkin

Since the third is nearest to the date of Stela N, *a priori* it would be considered the best of these four readings, but leaving this question undetermined for the present, let us continue the examination of our text.

Facing the monument, the right column of glyphs, the west band, would seem to be the next in order. This starts with the same ornamental glyph as the east band, and then follows a head-variant period-glyph, the tun-sign, with two coefficients 1, 2, or 3 to the left and 6, 7, or 8 above. (See figure 42.) The remaining glyphs in the western panel are noncalendric.

Passing on to the south band, it will be found to begin with a date 11 ? 13 Pop, the day-sign again not being clear. In Gordon's drawing (1902, figure 23) this is shown as an animal's head, while in Maudslay's drawing (1889-1902, vol. 1, plate 83) the head is grotesque. The writer's drawing of figure 42, shows that it is a grotesque head and may either be Chicchan, Oc, Men, or Ahau. Taking each in turn, it will be found by referring to Goodman's tables that the four dates possible here occurred in Cycle 9 nearest the date of Stela N, as follows:

9.15. 4.10. 5	11 Chicchan 13 Pop
9.15.17.13.10	11 Oc 13 Pop
9.16.10.16.15	11 Men 13 Pop
9.17. 4. 2. 0	11 Ahau 13 Pop

Again the third reading is the best, since it is less than a year later than the date of Stela N.

Now, the 13 Pop of this date is just at the intersection of the south and west bands, that is, just where the west band passes under the south band. Moreover, the number mentioned above is next this glyph, and it therefore seems probable that it is in some way connected with this date.

If this number connects these two dates (6 ? 3 Yaxkin and 11 ? 13 Pop), it is obvious that neither of its two recorded coefficients (6, 7, or 8 and 1, 2, or 3) can be the kin coefficient, since in counting either way from either date, 0, 5, 10, and 15 are the only four values of the kin coefficient which will reach 3 Yaxkin from 13 Pop or *vice versa*, and none of these numbers appear attached to this period glyph. Therefore, if this number does represent the distance between these two dates, it is evident that neither of the two coefficients present can be the kin coefficient. But we have already seen that in certain rare cases both coefficient and period-glyph may be omitted when the value of the former is 0;¹ and we have also just seen that the kin coefficient here must be either 0, 5, 10, or 15 if this number connects these two dates. Therefore we may probably conclude that this number is composed of tuns and uinals but no kins, *i. e.*, its kin coefficient is 0. Finally, as a corollary of the above conclusion, it follows that the uncertain day-signs in these two dates must be the same; that is, if we supply Men as the missing day-sign in one date we must also use it in the other, and so on. Fortunately, both the day coefficients and the months of these two dates are exceedingly clear, and leave no doubt as to the readings intended here. The first, 3 Yaxkin, is distant from the second, 13 Pop, 110 days, and the second from the first, 255 days. The number at the top of the west band, therefore, must be either one of these two numbers plus 365 days or a multiple thereof; and finally, since the day-signs must be the same, the total number at the top of the west band must be exactly divisible by 20,² and when divided by 13 the remainder must be either 5 or 8.³

It can be shown by calculation that no possible combination of 6, 7, or 8 tuns, 1, 2, or 3 uinals, and 0 kins will give a number which will fulfill all the necessary conditions present here. It is evident, therefore, that 1, 2, or 3 can not be the uinal coefficient, nor 6, 7, or 8 the tun coefficient; and yet *one* of each set of these numbers is surely recorded here.

A few cases are known, however, where the usual positions of the coefficients are reversed, the coefficient of the higher period being written to the left of the period-glyph instead of above in the usual position.⁴ Trying this new arrangement, it will be found that if 2 tuns, 6 uinals, and 0 kins, 2.6.0, *i. e.*, $110 + 2(365)$, is counted forward from 13 Pop, the month reached

¹ See note 1, page 203.

² Only when a number is exactly divisible by 20 will the same day-sign be reached in counting between two Maya dates.

³ These two numbers are the only ones which will reach the two day-coefficients actually recorded, 11 and 6, viz, $5 + 6 = 11$, or $8 + 11 = 19$, which, after casting out a 13, leaves 6.

⁴ See, Morley, 1915, pp. 127-129. Stela E at Quirigua and Altar U here at Copan are perhaps the best known examples of this inversion of the regular order.

will be 3 Yaxkin; in other words, the tun coefficient must be 2 and the uinal coefficient 6. Although this proves that the date on the south band is the starting-point and the date on the east band the terminal date, it does not fix either in its proper position in the Long Count. Turning to page 286, where the four possible values of the former date are given, let us choose the third value there, because it is the nearest to the Initial Series of Stela N, being in fact less than a year later. If 9.16.10.16.15 11 Men 13 Pop is the starting-point of this count, its terminal date can be shown to have been 9.16.13.4.15 6 Men 3 Yaxkin, as follows:

South band, 1st and 2d glyph-blocks, 9.16.10.16.15	11 Men 13 Pop
West band, 2d glyph-block, 2. 6. 0	
East band, 2d and 3d glyph-blocks, 9.16.13. 4.15	6 Men 3 Yaxkin

As will appear later, these two dates, though less than two and a half years apart, inclose within this brief span a date recorded more often at Copan than any other, namely, 9.16.12.5.17 6 Caban 10 Mol. Because of this fact and also because the latest of these dates is only a little over three years later than the date of Stela N, it is probable that both are correctly deciphered as given, and the doubtful day-sign in each is Men. A summary of the calculations on both the stela and its pedestal follows:

Stela N, east side A1-A7, A15, (1 ¹ .1.11.19).	9.16.10. 0. 0	1 Ahau 3 ² Zip
Stela N, west side B2-B6	14 .17.19.10. 0. 0	backward
	(1 ¹ .1.11. 4).11.17. 0. 0. 0	12 Ahau 13 Pax.
Pedestal, south side, 1st and 2d glyph-blocks, 9.16.10.16.15		11 Men 13 Pop
Pedestal, west side, 2d glyph-block, 2. 6. 0		
Pedestal, east side, 1st and 2d glyph-blocks, 9.16.13. 4.15		6 Men 3 Yaxkin

Stela N is the last monument of the stela type at Copan which is a hotun-marker, and indeed the next to last stela upon which an Initial Series is recorded at all. Toward the close of the Great Period there developed everywhere a tendency toward greater brevity in recording dates, in consequence of which dating by Initial Series began to go out of fashion.³ Copan, if not the leader in this movement, was certainly one of the first cities at which the tendency made itself felt, and with the single exception of the Initial Series on Stela 4 and the incomplete Initial Series on Fragment E', the Initial Series of Stela N is the latest here.

Stela N is the next hotun-marker after Stela M, and while it is the last stela used for that purpose, the practice of marking the hotuns was by no means discontinued, the later hotuns being marked either by temples or by smaller monuments, usually of the altar type.

The four last stelæ in point of time, Stelæ C, H, F, and 4, were not used to record the current hotun-endings, but to present other and less clearly understood calculations.

¹ The first four coefficients are supplied from the values given on Stela 10 at Tikal for the four higher time-periods. The first is doubtful.

² The original incorrectly has 8.

³ The almost complete absence of Initial Series dating in Yucatan will be taken up in Chapter V and in Appendix II.



a. Stela M, back.



b. Stela 22.



c. Glyph panel in north doorway of east jamb of Temple 11.



d. Central figure at "The Shrine of the Toad," R¹.

With the erection and dedication of Stela N, the Court of the Hieroglyphic Stairway seems to have been completed, and the scene of building activity again shifted farther south to the Acropolis. The closing years of the city's occupation were the most brilliant of all from an architectural point of view; and during the two katuns which followed Stela N, the Eastern and Western Courts were completed and the magnificent series of temples surrounding them were erected (see plate 6).

Before proceeding with the description of the final phases of sculptural activity at Copan, however, it is first necessary to consider four altars of uncertain date found in or near the Court of the Hieroglyphic Stairway, namely, Altars L, B', C', and D'.

ALTAR L.

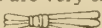
Provenance:	On the extremity of the L-shaped extension on the north side of Mound 10 of the Acropolis, Main Structure. (See plate 6.)
Date:	9.16.11.0.5 2 Chicchan 3 Zip (?).
Text, drawing:	figure 43.
References:	Maudslay, 1889-1902, vol. 1, plate 73, <i>b</i> . Bowditch, 1910, table 29. Goodman, 1897, p. 132. Gordon, 1896, pp. 20, 41, 42. Maudslay, 1889-1902, vol. 1 of text, p. 54.

Altar L was found on the western extremity of the L-shaped extension on the north side of Mound 10, at the Main Structure. It is 1.09 meters wide (*i.e.*, between the plain faces), 1.13 meters deep (*i.e.*, between the sculptured faces), and 67 cm. high. Maudslay states (*ibid.*, vol. 1 of text, p. 54) that it is carved on one side only, a drawing of which he figures (*op. cit.*, plate 73, *b*); but Gordon found that two of the four faces were sculptured:

"A drawing of this side (of Altar L) is given by Maudslay on plate 73; but he makes no mention of the opposite side, which is more weather-worn, but retains the outlines of a similar design only partially executed. The other two sides and the top are plain, which is unusual; and it is probable that the sides at least were to be carved."¹



A personal examination of the original convinced the writer that as it stands this altar is in an unfinished state. The subject on the completed face is two human figures, each sitting cross-legged on two glyphs with a column of three glyphs between them. These figures, while they resemble the earliest example of this type, *i.e.*, the small figure on Stela B² (see fig. 36), in general posture and habiliments are nearer to those on the step in Temple 11, and Altars Q and T, having not only the same objects in their hands as the latter, but also the same grotesque heads for breast-plates, except in the case of Altar T. This stylistic resemblance is important, since,

¹ Gordon, 1896, pp. 41, 42.

² All of the figures of this type are very similar. All have large turban-like head-dresses and all bear the same object in their extended hands. 

as will appear later, Temple 11 was probably dedicated in 9.16.12.5.17 and Altar Q probably in 9.17.5.0.0, and the similarity of Altar L to these two surely dated sculptures will materially help in fixing the position of its single Calendar Round date in the Long Count.

On the face under discussion,¹ there are seven glyphs, three in the column between the two figures and two under each figure. Of these, only the first two in the column are decipherable. They record a Calendar Round date, the day of which is partially effaced: 2 or 3 Chicchan, Oc, or Men 3 Zip; the day coefficient being best at 2. (See fig. 43.)

The month-sign is an unusual variant of Zip, which only occurs in two other inscriptions known, both at Copan, and both within 10 tuns of each other, *i. e.*, Stela N (9.16.10.0.0) and the reviewing stand on the north side of the Western Court (9.17.0.0.0). (See plate 6.) These three month-signs all have similar subfixes , which are entirely dissimilar to the usual Zip superfix , and as suggested in footnote 1 on page 67, the three monuments on which they occur all present such close stylistic similarities, and, in the case of two at least, such chronological proximity, that we are justified in assigning all three to the same period, if not indeed to the same sculptor. The six dates most probable here occurred in Cycle 9, nearest the dates of Stela N and the reviewing stand in the Western Court, as follows:

9.15.18.15. 5	3 Chicchan 3 Zip
9.16.11. 0. 5	2 Chicchan 3 Zip
9.16.12. 0.10	3 Oc 3 Zip
9.17. 4. 3.10	2 Oc 3 Zip
9.17. 5. 3.15	3 Men 3 Zip
9.17.17. 6.15	2 Men 3 Zip

In all probability the day-sign is not Men; and also in the case of the last reading it is too late to be historically probable, and may therefore be eliminated. Again, only the second, third, fourth, and fifth lie near the dates of Temple 11 and Altar Q, the nearest monuments on stylistic grounds, and only the second and third are near the dates of Stela N and the reviewing stand in the Western Court, which have the same unusual variant of the Zip superfix, thus reducing the probabilities to the second and third readings above.

A careful study of what is left of the day-sign, moreover, discloses the presence of two sharp-pointed teeth in the upper jaw. (See fig. 43.) These are wanting in the three signs for Oc which Bowditch figures,² but are present

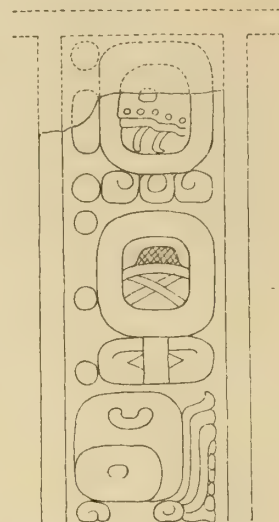


FIG. 43.—Inscription on front of Altar L.

¹ The other face was never finished.

² Bowditch, 1910, plate 5.

in the single sign for Chicchan which he gives.¹ They are also present in the day-sign in figure 41, which we have seen (p. 263) may also be Chicchan. This seems to indicate that the day-sign in A1 is Chicchan, and A1, A2 therefore reads 2 Chicchan 3 Zip, which eliminates the third and fourth readings above on other grounds. This date (9.16.11.0.5), was not only exactly 1 haab or year of 365 days later than the Initial Series of Stela N, but also only 1.10 (30 days) later than the date on the south band of the pedestal, which may account for its record here.

In support of this reading is the additional fact that a close examination of the day coefficient shows that it can only be 2. The middle element is clearly *longer* than the dot below it. Moreover, if the space which this glyph-block originally occupied is carefully measured, it will be found that there is just room above the longer middle non-numerical element for a dot of the same size as the bottom one. (See figure 43, where the upper part of this glyph-block has been restored in dotted lines.) This makes the coefficient 2 instead of 3, as drawn by Maudslay,² and on another ground eliminates the first, third and fifth values above. The writer regards it as practically certain that this date is 2 Chicchan 3 Zip, and as extremely probable that its corresponding Initial Series was 9.16.11.0.5, just 1 haab later than the Initial Series of Stela N. It is not far from Stela N (see plate 6), and doubtless is to be referred to the same period.

ALTARS B' AND C'.

Provenance:	At the western end of the Court of the Hieroglyphic Stairway in front of Mound 7 of the Acropolis, Main Structure. (See plate 6.)
Date:	9.16.10.0.0 1 Ahau 3 Zip (?) to 9.17.0.0.0 13 Ahau 18. Cumhu (?).
Text, (a) photograph:	Maudslay, 1889-1902, vol. 1, plate 113, b.
(b) drawing:	plate 22, a and b. figure 44.

Altars B' and C' seem to have been found at the western end of the Court of the Hieroglyphic Stairway in front of Mound 7. A photograph taken by the First Peabody Museum Expedition in 1891, No. 96, shows both ends of B' and one end of C' in this position and its title says "Sculptures found lying at eastern base of Mound 7."

Maudslay's photograph, probably taken in 1894,³ shows both ends of B' in the same place, but not the end of C'. In 1915 the writer also found both ends of B' here, but the end of C' seems to have disappeared. It is probable, therefore, that both of these altars originally stood in front of Mound 7 at the western end of the court. (See plate 6.) These altars are not monolithic, but are each composed of three blocks, two ends and a middle section. When assembled, each was about 1.6 meters long, 46 cm. wide, and 38 cm.

¹ Bowditch, 1910, plate 5.

² Maudslay, 1889-1902, vol. 1, pl. 73, b.

³ The year after Owens's death, the Peabody Museum had no expedition in the field, 1893-1894. Maudslay, however, visited the site as its representative and secured molds and photographs of part of the new material discovered by the First and Second Expeditions, 1891-1893. Part of this material was published as plates 100-119 of volume 1 of the section on archæology of the Biologia Centrali-Americana. The photograph reproduced in plate 113, b, showing the two ends of Altar B', was therefore probably taken in 1894.

high. The ends are sculptured with death's heads, two on each altar, and the long sides with glyphs. The tops and bottoms are plain. (See figure 44 for the general scheme of assemblage and plate 22, *a* and *b*, for detailed drawings of the inscriptions.)

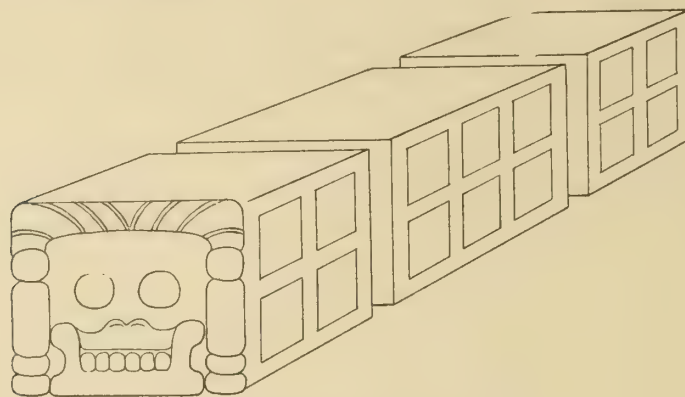


FIG. 44.—Drawing showing assemblage of the several sections of Altar B'.

In 1915 the writer found all three parts of Altar B', but only the middle section of Altar C'. The end shown in the Peabody Museum photograph of 1891, a cast of which is fortunately preserved there, No. C. 2662, has since disappeared, the writer fears wantonly destroyed.

This end of the Court of the Hieroglyphic Stairway has suffered much from vandalism. Under the grateful shade of the large trees left standing along its southern and western sides, parties of pilgrims on their way to or from the famous shrine of the Black Christ at Esquipulas, Guatemala, tarry here for their midday meal. Fires are lighted which crack the sculptures. Idle hands hack at the carvings with *machetes*, and irreparable loss speedily follows. Another source of destruction is the use of these blocks for building material in the village, fortunately 2 kilometers distant, else nothing would have been left at the Main Structure. However, in spite of this distance, there was abundant evidence in 1916 that blocks had been broken up and taken away from this court recently. It is not surprising, therefore, to find that both ends of Altar C' have disappeared.

As assembled in plate 22, *a* and *b*, the two middle sections are doubtfully placed. That shown as the middle section of Altar C' may have been the middle section of Altar B' and *vice versa*. Both these blocks have their ends dressed smooth by pecking, so that they would fit closely against the end-pieces.

Although these altars are very similar, yet slight differences in the treatment of the death's heads, the hair, ear-plugs, etc., prove that the two ends shown as belonging together in plate 22, *a*, are different from the death's heads on the two ends of Altar C', plate 22, *b*.

In Maudslay's photograph the left side of Altar B' shows six glyph-blocks; as found in 1915 only two are left, four having been broken off since. Allowing 56 cm. for the length of this end, the same as for the other, and allowing

48 cm. for the middle section, the total length of this altar must have been over 1.5 meters. After the six glyphs in the Maudslay photograph is a vertical band. Then came the middle section with four glyph-blocks, and then the right end with four or six more, making 14 or 16 on a side and 28 or 32 for the entire altar.

Concerning the date of Altar B', little can be said. One side (see plate 22, *a*) opens with a Calendar Round date 10? 8 Zac? This reading, however, is so doubtful that it is unsafe to attempt to fix it in the Long Count. If it were 10 Ahau 8 Zac, a reasonable reading would be 9.18.10.0.0 10 Ahau 8 Zac, the same date as that probably recorded upon Altar G₁, but there is too much uncertainty here about the month-sign to accept this reading. There are no other decipherable glyphs on the altar.

Altar C', as it now stands, is fragmentary, one end being gone. The death's head at the left in plate 22, *b*, is restored. The glyphs are clear for the most part, and though a number are of familiar aspect, none are yet decipherable. No trace of a date appears, and we are forced to conclude that it must have been recorded on the still missing right end (plate 22, *b*).

These two altars are clearly companion pieces and both doubtless date from the same time. The writer has assigned them to the lahuntun 9.16.10.0.0-9.17.0.0.0, on the grounds of their provenance, although at least one of them, B', may be two katuns later, *i. e.*, 9.18.10.0.0.

ALTAR D'.

Provenance:	At the western end of the Court of the Hieroglyphic Stairway in front of Mound 7 of the Acropolis, Main Structure. (See plate 6.)
Date:	9.16.13.9.0 13 Ahau 8 Zac (?).
Text, (<i>a</i>) photograph:	Maudslay, 1889-1902, vol. I, plates 9, <i>b</i> , 113, <i>b</i> .
(<i>b</i>) drawing:	figure 45.
	<i>Ibid.</i> , vol. I of text, p. 16; <i>ibid.</i> , and vol. I, plates 9, <i>b</i> , 114, <i>a</i> .
Reference:	<i>Ibid.</i> , vol. I of text, pp. 68, 69.

This altar stands at the base of Mound 7 at the western end of the Court of the Hieroglyphic Stairway. It is a flat, oblong block of stone about 2 meters long, 1 meter wide, and 30 cm. high. Over the top is stretched a grotesque monster, likened by Maudslay to a frog. (Compare also the top of Altar T.) The front is sculptured with the familiar double-headed dragon with a human head in one of its mouths. The adjacent side to the left and the back are inscribed with glyphs, 2 glyph-blocks on the former and 5 on the latter, or 7 for the entire text. The remaining side is occupied by the head of the frog on the top, which stretches over this end.

This text is of particular interest because of the fact that all of its glyphs¹ are full-figure forms, in which respect it is like Altar W'; in fact, as will appear in the discussion of Altar W', these two monuments are very similar in size, shape, and glyphic treatment. Unfortunately neither has an Initial Series,

¹ That is, all that could be full-figure forms. A few, *ea*, *fa* and *ga*, for example, are geometric glyphs, which do not appear to have ever had full-figure variants.

although the contemporaneous date of W' is almost surely 9.17.5.0.0. (See p. 332.)

The inscription opens on the back at the left with a glyph which may easily be identified as 13 Ahau (see figure 45) the day-sign cartouche con-

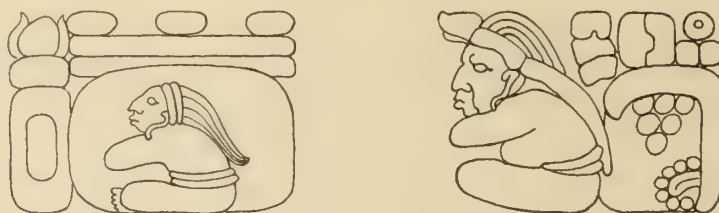




FIG. 45.—Calendar Round date on back of Altar D'.

taining a human figure seated cross-legged. Following this at B and C are two human figures in the same posture, the meanings of which are unknown. The fourth glyph, D, is the month corresponding to the day in A. This is either Chen, Yax, Zac, or Ceh, and is bound to the back of a human figure which is the month-sign coefficient. This is almost identical in form and presentation with the month-sign and coefficient on Altar W' (compare figures 45 and 46, *d*, c1); and to a somewhat lesser degree with the corresponding glyph on Stela D, A5 where the full-figure variants are also used. Since the day sign is surely Ahau, the month coefficient can only be either 3, 8, 13, or 18. A careful examination of the original failed to disclose the presence of a fleshless lower jaw, which further reduces the possibilities to 3 or 8, and of these, 8 would seem to be the better reading. The turban-like head-dress is apparently part of the band holding the month-sign on the figure's back, and is not the characteristic banded head-dress of the head for 3. However, 3 is a possible, though not the preferable, reading here.

The superfix of the month-sign is unusual . It bears absolutely no resemblance whatever to the superfix either  of Yax or of Ceh, both of which are always bilaterally symmetrical with reference to the vertical axis, though it may be either Chen or Zac, with the latter much the better reading. It is almost identical with the superfix of the month-sign on Altar W' (c1, figure 46, *d*), but unfortunately the month in the latter text is an error, and its value can not be checked. (See p. 332.) One thing is certain, however, that the month-sign here at D on Altar D', and at c1 on Altar W', are the same, and the identification of one would lead to the reading of the other. The four possible readings of A, D, therefore, are 13 Ahau 3 or 8 Chen or Zac, with 13 Ahau 8 Zac as the best. Each of these four possible dates occurred but once near the date of the other monuments and temples around the Court of the Hieroglyphic Stairway, as follows:

9.16. 6. 5.0	13 Ahau 3 Chen
9.16.18.10.0	13 Ahau 3 Zac
9.16. 1. 4.0	13 Ahau 8 Chen
9.16.13. 9.0	13 Ahau 8 Zac

Aside from being the best reading obtained from an inspection of the text, the last also is the only one which appears to have any special relationship with other dates in or about this court. The last is only 85 days later than the last date on the pedestal of Stela N, about 50 meters to the east, and only a little over a year (423 days) later than the important date 9.16.12.5.17 6 Caban 10 Mol inscribed on the step of Temple 11 on the south side of this court. The third reading above is the second choice. It antedates both Stelæ M and N, however, the former of which certainly would seem to have been erected before this altar. The first two values are hardly probable, as the month coefficient is almost surely 8.

The glyph following the month-sign, *ea*, is a well-known ending-sign, composed of the clasped hand and superfix with curl infix. As none of the possible dates end even tuns of the Long Count, it is difficult to see what can be the significance of this sign here. The remaining glyph on the back, *eb*, is a human figure of unknown meaning.

The inscription is concluded on the south end, none of the four glyphs of which are decipherable. The second, *fb*, is the sign which Goodman identifies, though probably incorrectly, as the glyph for the tonalamatl.¹ The next, *ga*, is a familiar glyph composed of the kin, Caban, and tun signs. Its meaning, however, is also unknown. The last glyph is another human figure of unknown meaning.

The date 9.16.13.9.0 for Altar D' would make it less than 12 years earlier than Altar W', which it most closely resembles on stylistic grounds, but this reading is so doubtful that it should be accepted only with reservation.

We come next to a very important group of monuments, all recording the same date, namely, 6 Caban 10 Mol, although all of them were probably not executed at the same time. There are seven of these in all: Altars V, R, U, Q, and T, Stela 8, and a step and door-jamb in Temple 11; and as the discussion proceeds it will become evident that in spite of the fact that the accompanying Initial Series is not recorded or at least has not been preserved in a single instance, there is ample proof that it could only have been 9.16.12.5.17 6 Caban 10 Mol. Finally, there is an eighth monument, Fragment E', which should be included here, as it records the first katun anniversary of this date.

Four of these monuments, Altars V, R, and U and Temple 11, actually appear to have been dedicated on this date, and three of the remaining four, although later, give it a prominent place in their inscriptions. Thus, for example, although the contemporaneous date of Altar Q is 9.17.5.0.0 6 Ahau 13 Kayab, it has 6 Caban 10 Mol as its most conspicuous date. And again, although Altar T and Stela 8² close with the first katun anniversary of this date, namely, 9.17.12.5.17 4 Caban 10 Zip, they both begin with 6 Caban 10 Mol itself. Finally, as noted above, Fragment E' also probably records this same katun anniversary.

¹ Goodman, 1897, pp. 28-31.

² The closing date on Stela 8 is really 5 days later, viz., 9.17.12.6.2 9 Ik 15 Zip.

In order to preserve the chronological order of presentation followed throughout this study, it will be necessary to divide this group of monuments. Altars V, R, and U and Temple 11 will be described first as being next in the chronological sequence. Altars Q and T, Stela 8, and Fragment E', on the other hand, will not be described until after the monuments dating from 9.17.0.0.0 (pp. 318-326) have been presented, that is, where they properly follow in the chronological sequence.

ALTAR V.

Provenance:	Original position uncertain. Somewhere in the Western Court of the Acropolis, Main Structure. The original is now in the Peabody Museum, Catalogue No. C, 15. (See plate 6.)
Date:	9.16.12.5.17 6 Caban 10 Mol.
Text, drawing:	Gordon, 1902, figures 20 and 21.
Reference:	Gordon, 1902, p. 181.

Altar V seems to be the earliest monument of this group. Unfortunately there is some uncertainty as to its exact provenance, although it is clear that it was found somewhere in the Western Court of the Acropolis, Main Structure.

The original is now in the Peabody Museum (Catalogue No. C, 15), having been brought back from Copan by the First Expedition in 1892. In the museum catalogue its provenance is given as "near southern base of Mound, western court of Main Structure." This would appear to refer to Mound 11, on the north side of this court, and it is shown in this position on the map in plate 6.

A photograph in the Peabody Museum collection, No. 13, showing this altar, casts some doubt on this provenance. This says "Tablet with hieroglyphs found in Western Court at southern base of Mound 22." This is incorrect as it stands, since Mound 22 is on the north side of the Eastern Court, and not of the Western Court. (See plate 6.)

Gordon, in his monograph on the Hieroglyphic Stairway, figures a drawing of this altar, but says nothing as to its provenance. The titles of the two drawings which he gives of it are: "Figure 20. Inscription on the four sides of a small stone table from Copan," and "Figure 21. Date on the top of table having the inscription shown in Figure 20 on the edges."¹

Since both the Peabody Museum catalogue and photograph agree (1) as to its having been found in the Western Court and (2) as at the southern base of a mound, and since the title of the photograph No. 13 is obviously incorrect as it stands, it seems highly probable that it was found at the southern base of Mound 11, in the Western Court, as shown in plate 6. If "22" is changed to "11" on this photograph, both accounts will agree.

Altar V is a rectangular block of stone 66 cm. long, 38 cm. wide, and 19 cm. high. When found it was broken into two pieces. The top and four sides

¹ Gordon, 1902, p. 181.

are covered with glyphs, the bottom being plain. There are two large glyphs on the top, four smaller ones on each of the long sides, and three smaller ones on each of the ends, making $2 + 3 + 4 + 3 + 4 = 16$ for the entire text. There is no other decoration. A comparison of Gordon's drawing with the original shows that it is accurate and adequate for all purposes of study. Although he calls Altar V a table, "altar" appears to the writer to be a better name for it. In size, shape, and treatment it very closely resembles Altar S, and would seem to be admirably adapted for use in ceremonies in which small offerings were made.

The two large glyph-blocks on the top are exceedingly clear, and unmistakably record the Calendar Round date 9 Cimi 14 Yaxkin. The inscription on the back, *i. e.*, one of the long sides, opens with another Calendar Round date which is equally clear as 6 Caban 10 Mol, the month coefficient being the head-variant for 10. There are no other calendric signs in the two remaining glyph-blocks on this side, and on the opposite long side all four glyph-blocks are effaced. The inscription on the two ends is partially effaced, although enough remains to show that there are no calendric signs here.

We have, then, as the net result of our inspection, two Calendar Round dates, 9 Cimi 14 Yaxkin and 6 Caban 10 Mol, but no Secondary Series number to connect them, or no Initial Series to fix either in its proper position in the Long Count. One of these, 6 Caban 10 Mol, as already stated, is probably the most important date in the history of Copan, first because it occurs many times more than any other date not a hotun-ending—eight times in all—and second, because it does not end a tun, hotun, lahuntun, or katun of the Long Count, and is therefore probably to be associated with some actual historical or astronomical event.

The first question is, which of these two dates is the earlier? Was the count forward from 9 Cimi 14 Yaxkin to 6 Caban 10 Mol, or *vice versa*? By referring to Goodman's tables it will be found that 6 Caban 10 Mol is later than 9 Cimi 14 Yaxkin by 7.2.11 (about 7 years), whereas 9 Cimi 14 Yaxkin is later than 6 Caban 10 Mol by 2.5.10.9 (about 45 years).¹ That is to say, if 6 Caban 10 Mol is the starting-point, the other date recorded would not occur until 45 years later, whereas if 9 Cimi 14 Yaxkin is the starting-point, the other date recorded will occur in a little more than 7 years. This, together with the fact that 6 Caban 10 Mol is by far the more important date of the two, practically proves that it is the later and contemporaneous date of the altar. However, even though it be accepted as established that

¹ Since any Maya date recurred at intervals of 52 years, the sum of two numbers, one counted forward from a given date *x* to reach a given date *y* and the other forward from the same date *y* to reach the next occurrence of date *x*, must equal 2.12.13.0 or 52 years, as here:

9.16. 5. 3. 6	9 Cimi 14 Yaxkin
7. 2.11	(7 years+)
9.16.12. 5.17	6 Caban 10 Mol
2. 5.10. 9	(45 years-)
9.18.17.16. 6	9 Cimi 14 Yaxkin

the count here is forward 7.2.11 from 9 Cimi 14 Yaxkin to 6 Caban 10 Mol, there is nothing on this inscription which will fix either of these dates to their corresponding positions in Maya chronology.

It will be remembered that the Initial Series 9.16.12.5.17 was assigned to the date 6 Caban 10 Mol in the synoptic presentation of this monument, and the reader is asked to accept this value for the present, until the evidence by means of which it was reached has been presented. If 9.16.12.5.17 is the correct Initial Series for the date 6 Caban 10 Mol, the Initial Series for 9 Cimi 14 Yaxkin can be shown by calculation to have been 9.16.5.3.6, as follows:

9.16.12.5.17	6 Caban 10 Mol
7.2.11	backward
9.16. 5.3. 6	9 Cimi 14 Yaxkin

This latter date is only 66 days later than the hotun Stela M was erected to commemorate, 9.16.5.0.0 8 Ahau 8 Zotz, an additional reason for believing these two dates are correctly deciphered as given. Final proof, however, will be forthcoming with the presentation of the other monuments of this group.

ALTAR R.

Provenance:	On the southern end of Terrace 17 at the northwestern corner of Mound 18 of the Acropolis, Main Structure. Removed by Maudslay in 1885 and now at the South Kensington Museum, England. (See plate 6.)
Date:	9.16.12.5.17 6 Caban 10 Mol.
Text, drawing:	Maudslay, 1889-1902, vol. 1, plate 94. Seler, 1902-1908, vol. 1, figure 177, p. 757.
References:	Goodman, 1897, p. 134. Maudslay, 1889-1902, vol. 1 of text, p. 60. Spinden, 1913, table 1.

Altar R was found by Maudslay at the southern end of the terrace in front of Mound 18 at the Main Structure, which the river has almost completely washed away, and was removed by him to the South Kensington Museum in 1885. It is very similar to Altars S and V in size, shape, and treatment. It is 1.02 meters long, 81 cm. wide, and 36 cm. high. On the front is a death's head carved in rather high relief, and on the back and sides, two horizontal rows of glyph-blocks each, 8 to a side or $8+8+8=24$ for the entire text. The top is plain.

As this monument was removed before the Peabody Museum began to work at Copan, there is no photograph of it in its collection. Indeed, so far as the writer knows, no photograph of it has ever been published. This is unfortunate, as the text is important in that it is one of those belonging to this group.

Assuming that the death's head is the front of the altar, the text starts on the adjacent side to the right. This is one of the short sides, as the death's head is on one of the long sides. As only one of the short sides opens with a date (the one figured next after the front by Maudslay) the writer believes it must have begun the inscription. This date is very clearly and unmis-

takably 6 Caban 10 Mol, and following this in A2 is what appears to be a variant of the lahuntun-sign. There are no other glyphs on this side of a decipherable nature. The eight glyph-blocks on the back are also of unknown meaning, with the exception of the last, which is the Venus-sign.

The only decipherable glyphs on the remaining side are the fourth and fifth, J2, K1, which, according to Maudslay's drawing, unmistakably record another Calendar Round date, 7 Ahau 3 Zip. There is no Secondary Series anywhere in the text to connect these two dates or an Initial Series to fix either to its proper position in the Long Count.

By referring to Goodman's tables, it will be found that if 6 Caban 10 Mol is the starting-point, it will be necessary to count forward 1.10.2.3, about 30 years, in order to reach 7 Ahau 3 Zip; and if 7 Ahau 3 Zip is the starting-point, it will be necessary to count forward 1.2.10.17, about 22 years, to reach 6 Caban 10 Mol. The writer believes the latter is the correct interpretation here, for the following reasons:

1. The count on Altar V, which is similar in every respect (*i. e.*, two dates, one, 6 Caban 10 Mol, and no number connecting them) was *forward* to and not backward from 6 Caban 10 Mol, though in this case the time was much shorter, *i. e.*, 7 years against 45 years, as it would have been had the order been reversed. It therefore seems likely, reasoning by analogy, that 7 Ahau 3 Zip is the starting-point here.

2. The distance from 7 Ahau 3 Zip to 6 Caban 10 Mol is nearly 8 years shorter than the reverse, an additional reason for accepting 7 Ahau 3 Zip as the starting-point.

3. Finally, there is no question but that 6 Caban 10 Mol was by far the more important date of these two. Therefore, since the overwhelming tendency in the Maya inscriptions was to record the most important date last, it is correspondingly probable that 7 Ahau 3 Zip is the starting-point here.

But even with this point established, it sheds no light on the proper position of either of these two dates in the Long Count. Assuming once more (until definite proof has been presented) that the Initial Series of 6 Caban 10 Mol was 9.16.12.5.17, the Initial Series corresponding to 7 Ahau 3 Zip can be shown by calculation to have been 9.15.9.13.0, viz:

9.16.12. 5.17	6 Caban 10 Mol
1. 2.10.17	backward
9.15. 9.13. 0	7 Ahau 3 Zip

ALTAR U.



Provenance:	Formerly with Altar T, just west of the large plain stela in front (<i>i. e.</i> , west) of the high mound at the southeastern corner of Group 9. Removed in 1893 to the center of the village plaza. (See plate 3 and figure 22, <i>c</i> and <i>d</i>).
Date:	9.16.12.5.17 6 Caban 10 Mol.
Text, (a) photograph:	Maudslay, 1889-1902, vol. 1, plate 97.
(b) drawing:	<i>Ibid</i> , plate 98.
References:	Bowditch, 1910, pp. 165, 206, 207. Goodman, 1897, p. 134. Maudslay, 1889-1902, vol. 1 of text, p. 63. Spinden, 1913, table 1.

Altar U now stands under the large *ceiba* tree in the middle of the village plaza (Group 9), in which conspicuous position, unfortunately, it receives more than its share of the destructive attentions of the villagers and their live-stock. (See figure 22, *d*.) Both Maria Melendrez and Jacobo Madrid tell the following story of its original provenance, and the circumstances attending its removal to the plaza. Formerly it stood with Altar T under a large *amate* tree just west of the plain stela in front (*i.e.*, west) of the high mound at the southeastern corner of the village plaza. This *amate* tree formerly stood where now the doorway from the courtyard of the house of Don Juan Ramon Cuevas opens into the street running south from the southeastern corner of the plaza, which serves to fix the original positions of Altars T and U and of Fragment E' found under the latter. (See figure 22, *c*.) In 1893, shortly after the municipality was organized, Carlos Madrid, then *com-mandante* of Santa Rita, assembled all the villagers, and had them drag both Altars T and U from under this *amate* tree to the center of the plaza, where they now stand.

Altar U is 1.5 meters long, 61 cm. wide, and 91 cm. high. The front is carved in the semblance of a grotesque head, and each side with a serpent whose gaping jaws inclose a seated human figure. There are also a pair of glyph-blocks on each side. The back is entirely covered with the inscription, 10 columns of 5 glyph-blocks each, or 49 for the entire panel, the space of one glyph-block, *c5*, being occupied by an inclusion of harder volcanic rock, which the ancient artisans found themselves unable either to reduce or remove. A description of this, together with the material of the body of the altar, will be found in Appendix I. The top also is entirely covered with glyphs, 8 columns of 3 glyph-blocks each, or 24 in all. This makes a total of $2+2+49+24=77$ for the entire monument.

To read the inscription, one must face the back of the altar, in which position only will the columns of glyphs there appear right side up. The panel of 24 glyph-blocks on the top is to be read first, and, so far as the writer can detect, it is entirely independent of the panel of glyphs on the back, although the lower edge of the former touches the upper edge of the latter. The sequence of glyphs appears to be as follows: First, the panel on top—A1, B1, A2, B2, A3, B3, C1, D1, C2, D2, C3, D3, etc., through G3, H3; then the two glyphs I1, J1, on the left side (facing the back of the monument); then the entire panel of 10 vertical columns on the back, which is to be read in pairs of columns, thus: K1, L1, K2, L2, K3, L3, K4, L4, K5, L5, M1, N1, etc., through S5, T5; and finally, the last two glyphs on the right side, U1, V1, which close the inscription. The text opens at A1, B1 with a Calendar Round date which is either 2 Caban o Pop or 3 Caban o Pop. A first-hand study of the day-coefficient established the fact that the lower dot is surely numerical, thus limiting the number to 2 or 3; and since the stump of the destroyed middle dot in no way differs from the stump of the destroyed upper dot, which is known to have

been numerical,¹ the latter reading, 3 Caban o Pop, is practically certain. Moreover, as will be shown later, 3 Caban o Pop is closely connected with another date on Altar U, whereas 2 Caban o Pop has no significant relationship with any other dates on the monument. Indeed, all things considered, the date in A1, B1 may be accepted with certainty as 3 Caban o Pop. This date occurred in the Great Period, to which Altar U must be referred on stylistic grounds, in two places, namely, at 9.15.9.10.17 and 9.18.2.5.17. Before attempting to decide which of these two is the correct value here, let us examine the text further.

Following A1, B1 in A2 is a Secondary Series composed of two coefficients attached to the tun-sign: . The one to the left is clearly 2, and the one above, 11 or 13. A first-hand study of the latter established the fact that although  both the outside dots are destroyed, their stumps looked just like the middle dot, which is undoubtedly numerical. It is obvious, further, that either the uinal or kin coefficient must be 0, otherwise it could not have been omitted. The only reading of A2 which appears to have any particular significance is based on the assumption that the kin coefficient is 0; and that the tun and uinal coefficients are reversed in position, the 2 at the left being the tun coefficient and the 13 above the uinal coefficient. Although this latter is just the reverse of the usual order in Secondary Series numbers, such cases occur,² and the relationship which this inversion makes possible amply justifies its acceptance here. A2 therefore probably records 2.13.0, and if this number is counted forward from 3 Caban o Pop, the date reached will be found to be 8 Caban 10 Mac, which is exactly 1 katun earlier than 6 Caban 10 Mol, the important date recorded so many times during the Great Period here at Copan, and in fact on this very monument at K1, L1. But we have already assumed that the Initial Series of this latter date was probably 9.16.12.5.17, and we may therefore calculate the Initial Series of these other two dates, *i. e.*, 3 Caban o Pop and 8 Caban 10 Mac (the latter not recorded), as shown on page 302.

¹ This results directly from the Maya method of notation. When there is an uneven number of effaced elements—always 3—the upper and lower elements are always the same. If they are numerical, the number may be either 2 or 3, depending on whether the middle element is numerical or ornamental. But if the upper and lower elements are ornamental, the number can only be 1. So here, since the lower element is surely numerical, the coefficient must either be 2 or 3, depending on the character of the middle element. Maudslay's drawing of this glyph (1889-1902, vol. I, plate 98, glyph 1) shows a cross between the two dots. The original, however, does not show this, having quite clearly the traces of a middle dot.


² A case in point is glyph A17 on the west side of Stela E at Quirigua. Here the uinal-sign is surmounted by a coefficient of 19 (clearly an impossible value in Maya numeration) and preceded by a coefficient of 4. At first sight this distance-number would appear to be 8.19.4. The two dates which it separates are 9.16.11.13.1 11 Imix 19 Muan and 9.17.0.0.0 13 Ahau 18 Cumhu. But these two dates are only 8.4.19 apart, viz:

9.16.11.13. 1	11 Imix 19 Muan
8. 4.19	
9.17. 0. 0. 0	13 Ahau 18 Cumhu

and it is therefore evident that the usual positions of the uinal and kin coefficients are reversed, the 19 standing above the uinal-sign instead of to the left. Glyph B12 of the same inscription is another case in point. Here the kin coefficient 6 stands above the uinal-sign instead of to its left. The Secondary Series number beginning the west side of the pedestal of Stela N, here at Copan, 2.6.0 also shows this same inversion of the regular order. A few other examples might be cited, but the foregoing are sufficient to show that this unusual arrangement sometimes occurs. It seems to have arisen from a desire to improve the *appearance* of the glyph rather than as indicating any corresponding change in the number thus manipulated.

A1, B1	9.15. 9.10.17	3 Caban o Pop
A2	2.13. 0	
Not recorded,	9.15.12. 5.17	8 Caban 10 Mac
	1. 0. 0. 0	
K1, L1,	9.16.12. 5.17	6 Caban 10 Mol

Returning to the discussion of the glyphs on the top, it will be found that there are no others of a calendric nature after the number 2.13.0 in A2. Some of the remaining glyphs are of familiar form, such as the head of God C in c3 and again in F1 and the Zotz head with the Ben-Ik superfix in H3, but none are of known meaning.

The inscription is continued at 11, which is clearly the katun-sign with a coefficient of 10 prefixed to it.¹  Originally there was another coefficient above, but this is now destroyed. It could not have been above 5, however, and, as we shall see, was probably only 1. Following this, at J1, is a grotesque head, and just around the corner at K1, L1 the date ? Caban ? Mol, both the day and month-signs being certain, and the coefficients in each case being above 5 but under 11.

We can hardly refuse to recognize in K1, L1, therefore, the well-known date 6 Caban 10 Mol found so frequently in this group of monuments, and while direct proof of this reading is lacking, strong indirect confirmation of it exists:

1. In the first place, the date recorded is ? Caban ? Mol, with the two effaced coefficients surely above 5 but under 11. No other date has been found at Copan wherein the day-sign is Caban and the month-sign Mol, except 6 Caban 10 Mol, which is found, however, in seven other sculptures, all from the close of the Great Period. The conclusion, therefore, is almost inevitable that 6 Caban 10 Mol is recorded here, particularly since the spaces occupied by the effaced day and month coefficients also agree with this reading.

2. This date is recorded in the most conspicuous place on the monument, namely, in the first two glyph-blocks on the back.

3. Finally, by reading K1, L1 as 6 Caban 10 Mol an interesting condition develops.

Returning to the Secondary Series number in 11, we see that at least two of its coefficients have been omitted. There is a 10 to the left of the katun-sign and probably 1 above, leaving two coefficients missing, presumably both 0. This is the only case of its kind of which the writer knows. There are several instances, as already noted, where two coefficients are attached to the tun-sign and one missing; indeed, such a case occurs in this same inscription at A2. But this is the only place known where two coefficients are missing. It is doubtless perfectly safe to assume that they were both 0, and the real difficulty is to determine how these four coefficients of 1, 0, 0, and 10 are to be distributed among the four periods involved here: katuns, tuns, uinals, and kins. This question is incapable of positive answer at this time, but the arrangement suggested below is not only the most

¹ Maudslay's drawing of this glyph (1889-1902, vol. 1, plate 98, glyph 25) is incorrect. He shows the katun-sign as extending to the top of the glyph-block, whereas it falls 2.5 cm. short of it, just space enough for a coefficient below 6, as noted above.

logical, but also the only one which develops a significant chronological relationship with other dates present in this text. The writer believes that the katun coefficient is recorded above and is 1, since 10, the only other value possible, represents too long a stretch of time to have been recorded upon a monument all of whose dates save one are within a few years of each other, the odd date being 6 Caban 10 Mol. Although the number above the katun-sign is completely effaced, we have seen that it was under 6. If used as 1, however, there is developed a significant relationship with the other dates recorded, a relationship, moreover, which does not follow if the katun coefficient is used as either 2, 3, 4, or 5. Finally, unless the kin coefficient is 10 and the two intermediate coefficients both 0, the Maya themselves must have been at loss to read such an abbreviated number correctly. Now, if the number above be regarded as the coefficient of the highest period present (*i. e.*, the katun), and the number to the left as the coefficient of the lowest period present (*i. e.*, the kin), it should be noted that the regular order in the overwhelming majority of all Maya Secondary Series numbers will have been followed, and no confusion could have arisen in the minds of the inhabitants of the city as to the number recorded in 11. If this is correct, then 11 may be deciphered as 1.0.0.10, and by its position in the inscription, *i. e.*, immediately preceding 6 Caban 10 Mol in K1, L1, it is probable that this number is to be counted forward from some date to reach 6 Caban 10 Mol.

This starting-point can be shown by calculation to be 11 Manik 0 Mac, and since the Initial Series of 6 Caban 10 Mol has been assumed to be 9.16.12.5.17, the Initial Series of the unexpressed starting-point, 11 Manik 0 Mac, can also be established by calculation, as follows:

9.16.12. 5.17	6 Caban 10 Mol
1. 0. 0.10	backward
9.15.12. 5. 7	11 Manik 0 Mac

And here lies the significant connection above noted. This latter date, 9.15.12.5.7 11 Manik 0 Mac, the starting-point of the Secondary Series number in 11, although not recorded, is just 10 days earlier than the date (also not recorded) reached by counting the first Secondary Series number 2.13.0 in A2 forward from the first date, 3 Caban 0 Pop, in A1, B1. In other words, the record overlaps 10 days here.

A1, B1	9.15. 9.10.17	3 Caban 0 Pop
A2	2.13. 0	
Not recorded	9.15.12. 5.17	8 Caban 10 Mac

Moreover, in further confirmation of this reading, we will find a date just 7 days earlier than 9.15.12.5.7 11 Manik 0 Mac farther on. While these readings require some restorations in the original, they develop such interesting relations that their accuracy is rendered extremely probable.

The next date is at L5, M1 and is perfectly clear (except the month coefficient) as 9 Ik? Mol. When at Copan in 1912 the writer gave this month coefficient a close examination. It was evident that it had to be either

0, 5, 10, or 15, as the day-sign is clearly Ik. Traces of one bar appear surely and there is room for just one bar more of equal width above in order to bring the top of this glyph-block up to the same level as the tops of the others, but not enough room to allow for two bars more. This makes the date almost certainly 9 Ik 10 Mol. The calculations, moreover, prove the correctness of this reading almost beyond dispute.¹ The date 9 Ik 10 Mol is only 215 days earlier than 3 Caban 0 Pop, the first date in this inscription, and only 150 days later than the last date on this monument, namely, 2 Eb 0 Pop. In other words, it stands between the first and last dates on this monument, which themselves record two consecutive New Years' days of the Long Count.² Moreover, the only other possible reading of L5, M1 is 9 Ik 5 Mol, which develops no such a relation. 9 Ik 10 Mol occurred in Cycle 9 nearest the Initial Series of 3 Caban 0 Pop and 6 Caban 10 Mol at 9.15.9.0.2, which is just 10 uinals and 15 kins earlier than the former, viz:

9.15.9.10.17	3 Caban 0 Pop
10.15	backward
9.15.9.0.2	9 Ik 10 Mol

This last date has one other interesting property: it is exactly 23 haab or years of 365 days earlier than the reading here followed for the important date 6 Caban 10 Mol. $1.3.5.15 = 8,395 \text{ days} = 23 \times 365 \text{ days}$.

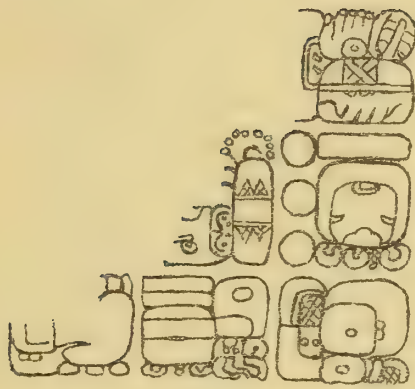
The next date, N4, is very clearly 4 Ahau 13 Ceh, probably 9.15.12.5.0 4 Ahau 13 Ceh, which occurred just 7 days before the starting-point of the second Secondary Series number in 11, *i.e.*, 9.15.12.5.7, and just 17 days before the closing-date reached by the first Secondary Series number in A1, 9.15.12.5.17.

The next date, 01, P1, is 4 Ahau 13 Chen, Yax, Zac, or Ceh. Most unfortunately, the superfix which would have determined this point is almost entirely effaced. From what remains of it, it would appear to have been Yax. Following this in 02 is 11, 12, or 13 tuns. Now, 4 Ahau 13 Yax occurred at 9.15.0.0.0, and counting back 12 tuns from the date next preceding in the text, namely, 9.15.12.5.0 4 Ahau 13 Ceh in N4, will bring the count very near (within 100 days) 9.15.0.0.0 4 Ahau 13 Yax. Or again, in counting back 13 tuns from 9.15.12.5.0 4 Ahau 13 Ceh, the count passes through 9.15.0.0.0 4 Ahau 13 Yax to 9.14.19.5.0 4 Ahau 18 Muan, which latter date we have already seen recorded on Stela A here at Copan, and a date, moreover, just 1 tonalamatl before 9.15.0.0.0. Whatever meaning

¹ Another point proving that the coefficient in M1 was 10 and not 5 is the following: the month-sign, Mol, in M1 is exactly the same height as the month-sign Mol in the glyph on its left, L1 the coefficient of which, as we have already seen, is almost certainly 10. Therefore, if the coefficient of L1 was 10, the coefficient of M1 would in all likelihood have been the same, that is, would have been composed of an equal number of bars *i.e.*, two.

² Landa states explicitly and unequivocally that the Maya of Yucatan *i.e.*, of the New Empire, began their year with the first day of the month Pop, *i.e.*, 0 Pop:

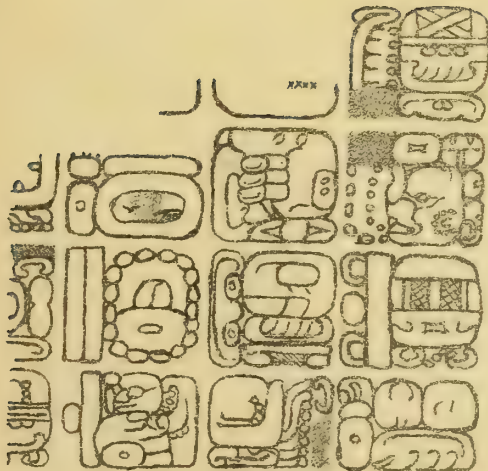
"The first day of the year with these people was always on the XVI day of our month July, [O. S.] and the first of their month Pop." (Landa, 1881, p. 90.) And again: "The first day of Pop, which is the first month of the Indians, was their New Year and was a very celebrated festival among them." (*Ibid.*, p. 97.) The evidence here on Altar U, and also on one of the inscribed lintels at Tikal, tends to indicate that 0 Pop was also the New Year Day in the Old Empire as well.



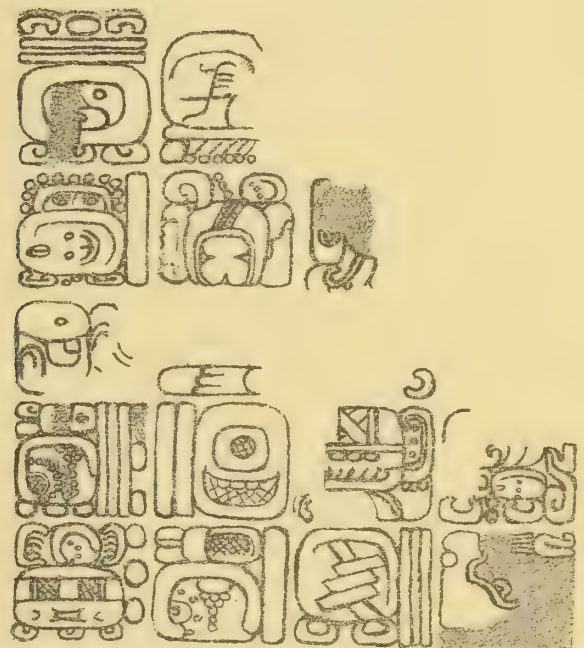
a



b



c



d

Inscriptions in the doorways of Temple 11. (a and b) South Doorway, (c and d) North Doorway.
 Drawn from the original.

the 13 tuns may have in 02, the date in 01, P1 is almost surely 9.15.0.0.0 4 Ahau 13 Yax.

The last date, 03, P3, is either 2 Eb 0 Pop or 3 Eb 0 Pop, in either case another Maya New Years' day. The lower dot is surely numerical, which makes the number either 2 or 3; and as the stump of the middle dot is larger than the bottom one, this number is probably 2. The writer examined this coefficient very carefully in 1916 and came to the conclusion that it could only have been 2. Indeed, if the day coefficient is 2, such an interesting relationship with the first date on this altar develops that we would be almost justified in so reading it, even if 2 were not the best value obtained by inspection. If this date is 2 Eb 0 Pop, when used with the first date in this text, 3 Caban 0 Pop, two consecutive New Years' days are recorded; and since the Initial Series of 3 Caban 0 Pop has been assumed to have been 9.15.9.10.17, that of 2 Eb 0 Pop can be reached by calculation as follows:

$$\begin{array}{rcl} 9.15.9.10.17 & 3 \text{ Caban } 0 \text{ Pop} & \\ 1. 0. 5 = & 1 \text{ year of } 365 \text{ days, backward} & \\ 9.15.8.10.12 & 2 \text{ Eb } 0 \text{ Pop} & \end{array}$$

This coincidence is so striking as to make it practically certain that both dates are correctly deciphered as given.

From this point on to the end of the inscription in v1 there are no other glyphs of a calendary nature, so far as known.

Before analyzing the possible significance of this text, let us summarize the dates deciphered, arranging them so far as possible in their chronological order:

Not recorded	9.14.19. 5. 0	4 Ahau 18 Muan (?)
Not recorded	(13. 0)	1 tonalamatl
01, P1	9.15. 0. 0. 0	4 Ahau 13 Yax
03, P3	9.15. 8.10.12	2 Eb 0 Pop, a New Year begins
L5, M1	9.15. 9. 0. 2	9 Ik 10 Mol, exactly 23 haab before the important date 6 Caban 10 Mol
A1, B1	9.15. 9.10.17	3 Caban 0 Pop, next New Year begins
A2	2.13. 0	
Not recorded	(9.15.12. 5.17	8 Caban 10 Mac), exactly 1 katun before the important date 6 Caban 10 Mol
02	13.(0. 0)	to be added to first date
N4	9.15.12. 5. 0	4 Ahau 13 Ceh, just 7 days earlier than the following date and 17 days earlier than the preceding date
Not recorded	(9.15.12. 5. 7	11 Manik 0 Mac)
I1	1. 0. 0.10	
K1, L1	9.16.12. 5.17	6 Caban 10 Mol, the latest date on the the monument and also the most important, beginning the inscription on the back

The first outstanding fact in connection with this inscription is that the closing and probably also the contemporaneous date as well, is the important date 9.16.12.5.17 6 Caban 10 Mol, recorded most conspicuously as the first date on the back.

The next important fact is that two consecutive New Years' days are recorded which are more than a katun prior to this closing date, and which contain between them, a date (9 Ik 10 Mol) exactly 23 haab earlier than this closing date. The latter of these, moreover (9.15.9.10.17 3 Caban 0 Pop), is used as a point of departure for a number (2.13.0) which brings the count forward to a date, not recorded, exactly 1 katun earlier than the important closing date. But since it only occurs this once at Copan as compared to eight occurrences of 9.16.12.5.17 6 Caban 10 Mol itself, it probably did not become important until after 9.16.12.5.17, at which time the priests projected back their calculations so as to include it here. This preceding katun anniversary of 9.16.12.5.17 6 Caban 10 Mol, *i.e.*, 9.15.12.5.17 8 Caban 10 Mac, however, must have been regarded as having been fairly important, since there are two other dates on Altar U within 10 and 17 days of it, respectively. The earlier of these, 9.15.12.5.0 4 Ahau 13 Ceh, is possibly used as a point of departure for a backward count of 13 tuns to 9.14.19.5.0 4 Ahau 18 Muan, recorded on Stela A, which is just 1 tonalamatl before the end of an even katun 9.15.0.0.0 4 Ahau 13 Yax, which also appears on Altar U at 01, P1.

The other one of these two dates, 9.15.12.5.7 11 Manik 0 Mac, though not recorded, is the point of departure for the Secondary Series number 1.0.0.10 in 11, J1, whose terminal date is 6 Caban 10 Mol, the closing date of the inscription. These three dates, 9.15.12.5.0, 9.15.12.5.7, and 9.15.12.5.17, are only 110, 103, and 93 days earlier respectively than Date 11 of the Hieroglyphic Stairway, 9.15.12.10.10 10 Oc 3 Cumhu, which may indicate some relationship between them.

Finally, the remaining date, 9.15.9.0.2 9 Ik 10 Mol, occurs between the two New Years' days recorded, 150 days after the earlier one and 215 days before the later one, and is just 23 haab earlier than 9.16.12.5.17 6 Caban 10 Mol. Goodman makes no attempt to decipher this inscription, confining himself to the observation that "so much is illegible, and so much of the remainder is unintelligible . . . that nothing connected can be made of it."¹

Bowditch, on the other hand, was the first to point out that this inscription has two New Years' days in it, although in the writer's opinion he reads both incorrectly, the first as 10.1.7.3.17 2 Caban 0 Pop instead of 9.15.9.10.17 3 Caban 0 Pop, and the second as 9.14.16.7.12 3 Eb 0 Pop instead of 9.15.8.10.12 2 Eb 0 Pop.² These readings are open to two serious, if not indeed eliminative, objections; first, instead of 1 year apart as suggested here, they make these two New Years' days 129 years apart: $6.10.14.5 = 47,085 \text{ days} = 365 \times 129$; and second, they both lie beyond the extremes of the other dates on this altar, 9.14.16.7.12, being 3 years earlier

¹ Goodman, 1897, p. 134.

² Bowditch (1910, pp. 206, 207) gives the first of these Initial Series, 10.1.7.3.17 outright, but the second, 9.14.16.7.12, he only implies, saying 922 days (2.10.2) backward from 9.15.0.0.0 4 Ahau 13 Yax reaches (9.14.17.7.18) 5 Eznab 1 Pop, and 366 days (1.0.6) further back reaches (9.14.16.7.12) 3 Eb 0 Pop. As pointed out above, the writer can not agree with either of these readings.

than the earliest, and 10.1.7.3.17, being more than 57 years later than the latest contemporaneous date on any monument at Copan, *i. e.*, 9.18.10.0.0 on Altar G₁. He also deciphers L5, M1 as 9 Ik 0 Mol instead of 9 Ik 10 Mol as probably recorded. On the basis of his readings he sees here an ingenious intercalary count—no less than the number of days necessary at 10.1.7.3.17 2 Caban 0 Pop to bring the calendar and the true solar year into harmony. Unfortunately, the three dates upon which this reading rests are probably incorrectly deciphered as used, and, moreover, 10.1.7.3.17 is too late to be historically probable at Copan.

It is not claimed that the readings suggested here for the several dates on Altar U are beyond question; but the coincidences and inter-relationships to which they give rise are strongly in their favor. It must be remembered that Copan was at her zenith when this monument was erected, and the Initial Series method of recording events had practically ceased to be used—gone out of fashion as it were. We are therefore confronted with the serious problem of assigning the various Calendar Round dates recorded on these later monuments to their proper positions in Maya chronology without this valuable check. Usually, however, only two values are possible, as practically all such dates lie in the Great Period, *i. e.*, between 9.15.0.0.0 and 10.2.0.0.0, and at Copan probably between 9.15.0.0.0 and 9.18.10.0.0, between which the choice is generally clear. Therefore, although the readings suggested above lack the indisputable authentication afforded by their corresponding Initial Series or even Period Endings, the interrelationships developed, as well as the evidence from the stylistic criteria, strongly indicate their accuracy. Finally, when all the evidence has been presented, it will be clear that the Initial Series corresponding to 6 Caban 10 Mol could have been none other than 9.16.12.5.17.

TEMPLE II.

- | | |
|-----------------------|---|
| Provenance: | On the summit of the pyramid separating the Court of the Hieroglyphic Stairway from the Western Court, at the Acropolis, Main Structure. (See plate 6.) |
| Date: | 9.16.12.5.17 6 Caban 10 Mol. |
| Text, (a) photograph: | plate 28, c. |
| | Maudslay, 1889-1902, vol. 1, plates 5, 8. |
| (b) drawing: | plate 29. |
| | Maudslay, 1889-1902, vol. 1, plate 8. |
| | Seler, 1902-1908, vol. 1, figure 178, p. 757. |
| References: | Gordon, 1896, pp. 22, 23. |
| | Maudslay, 1889-1902, vol. 1 of text, pp. 21, 22. |
| | Seler, 1902-1908, vol. 1, p. 758. |
| | Spinden, 1913, p. 162 and table 1. |

Temple II crowns the high pyramid between the Western Court and the Court of the Hieroglyphic Stairway at the Acropolis, Main Structure. The northern façade is the front of the building, and commands a fine view, not only of the court just below, but also of the Great Plaza beyond. The temple is reached by a single stairway on the north side which originally

extended along the entire south side of the Court of the Hieroglyphic Stairway.

Maudslay seems to have entertained the idea that this stairway divided toward the top into three sections, each flight narrowing as it ascended, the two outer ones leading to the terraces to the east and west of Temple 11 respectively and the middle one to a higher elevation, the substructure of the temple proper.¹

Gordon, however, mentions but one stairway at this point, the western and eastern ends of which lead to the terraces at the west and east ends of the temple respectively, and the middle part to the temple itself.² The upper part of this stairway is now completely hidden by the débris fallen from the north façade of the temple, though it appears probable that its steps extend across under this material, and that all belong to a single stairway. At the base of the substructure, and directly in line with the middle of the doorway of the temple above, stands Stela N, the correlation of the two being perfectly clear. This temple is one of the largest and most beautiful at Copan, the substructure from which it rises being 30 meters above the level of the court below. Gordon believes it was a tower of considerable height, because of the great quantity of stone lying around its base in every direction. The writer, however, does not incline to this view, and Maudslay, who partially excavated the building, says nothing in his description in support of such a conclusion.

Ascending the broad and spacious stairway on the north side, the three top steps³ are found to present the double-headed dragon associated with human figures seated cross-legged and holding glyphs in their outstretched hands. There is one figure on the top step and three on the second step. Only one block of the third step is *in situ*. The right end of this shows a bar-and-dot coefficient of 13. None of the glyphs are decipherable. (See the Peabody Museum photographs Nos. 1896 and 1897.) The temple proper rises from the very edge of the substructure. At present no exterior walls are visible, although excavation would doubtless disclose their bases. The vestibule or northern doorway is 2.77 meters wide at the front and was probably not more than 1.5 or 2 meters back to the offset, which narrows it to a width of 1.89 meters. This back part is 1.83 meters deep and gives into a long, narrow, transverse outer gallery, which is upward of 30 meters long, though only 1.22 meters wide. (See plate 6.)

Opposite the outer doorway there is another in the back wall of the gallery, its threshold being 46 cm. above the floor-level of the latter. The riser of this step, a beautifully sculptured panel 5.5 meters long and 46 cm. high, was removed by Maudslay to the South Kensington Museum in 1885. The doorway to which it leads is 1.5 meters wide and gives into

¹ Maudslay, 1889-1902, vol. 1 of text, p. 21.

² Gordon, 1896, p. 22.

³ These three steps may not be part of the stairway proper, but may be set back about a meter from the top step, leading to a low platform on which Temple 11 may stand. The construction is doubtful here, owing to the advanced state of ruin.

a small central chamber less than 2.75 meters square. From its central location this would appear to have been the chief sanctuary or most sacred part of the temple. (See plate 6.)

The doorway giving access to this small central chamber, moreover, is flanked by an elaborate design in the outer gallery, which Maudslay believes represented a huge serpent head without lower jaws (Maudslay, 1889-1902, vol. I, plate 7, *a*, and text p. 22). Above and extending to the right and left of the doorway for a distance of 2.13 meters on each side, and probably extending above the doorway itself originally, is a frieze of seated human figure and glyphs. This was in a ruinous condition when found, and no drawing of it was made. Two fragments, now in the South Kensington Museum, are also figured by Maudslay (1889-1902, vol. I, plate 7, *b* and *c*). When entire this inner doorway must have been one of the finest in the city, being surpassed, indeed, only by the inner doorway of Temple 22, and possibly by the doorways of Temple 26.

In the back wall of the sanctuary there is another doorway 1.83 meters wide and 1.22 meters deep which terminates with a step 46 cm. high down to the level of another small chamber at the rear. The riser of this step is sculptured with a row of teeth instead of the seated figures in the same relative position in the front gallery. Huge serpent heads also flank the jambs of this doorway, which extends clear through to the back of the temple and gives on to a narrow terrace overlooking the Western Court.

The jambs of the two outer doorways, *i.e.*, in both the northern and southern façades, are inscribed with panels of glyphs. (See plate 6.) Unfortunately, the north and south exterior walls suffered most heavily when the roof collapsed, and the positions of the individual blocks in these mosaics are sometimes difficult to determine. Much, of course, is lost forever, but the writer drew what was left in 1915, at which time he was able to restore a few blocks to their original positions. (See plate 29.)

Maudslay only partially excavated this temple (see his map, vol. I of text, p. 21) and there are doubtless other chambers to the east and west of the central gallery running through the building. Indeed, he shows two doorways in the latter leading into interior rooms. (See plate 6.)

We have, then, in Temple 11, two groups of glyphs available for study:¹ (1) the panel on the step in the outer gallery, now in the South Kensington Museum, and (2) the four panels on the jambs of the two exterior doorways.

The panel on the step in the outer gallery is sculptured with a design of 20 human figures, each seated cross-legged on a glyph-block. The ten to the right face to the left and the ten to the left face to the right; the two central figures face a panel of eight glyph-blocks arranged in two columns. This makes $10+8+10=28$ glyphs for the entire text. These figures are of the same type as the one on Stela B, figure 36, and also as those on Altars

¹ Originally there were probably three other inscriptions in this temple, all of which are now too fragmentary to be deciphered: (1) the three steps in front of the temple; (2) the glyphs over the north doorway of the sanctuary; (3) the glyphs over the south doorway of the sanctuary.

L and Q, and they constitute a class of design all by themselves. The first two glyphs very clearly record the Calendar Round date 6 Caban 10 Mol, the month coefficient being a head-variant instead of a bar-and-dot numeral, as in the case of Altars V, R, and U. Seler was the first to read this date,¹ although he says nothing about its position in the Long Count. This we have assumed for the present to have been 9.16.12.5.17.

There are no other decipherable glyphs on this step, although almost all of them are of familiar form. Attention should be called to the late form of the tun-sign under the third figure on the right.

Let us next examine the four glyph-panels in the outer doorways. (See plate 29.) These were probably uncovered by Maudslay in 1885, when he made most of his excavations at Copan. He mentions them, but states that the stones were so much worn and displaced by trees that nothing could be preserved or copied.² The damage wrought by this latter factor, the roots of trees, is well illustrated in plate 28, *c*, which shows the present ruinous condition of the east jamb of the north doorway.³ Note how the stones of the mosaic have been pried apart by the roots; some have slipped only a few centimeters, others have fallen out on the plaster floor of the vestibule and were recovered in the excavations, and still others have entirely disappeared.

In 1915 the writer spent several days in Temple 11 drawing what was left of these panels, and, wherever possible, restoring fallen elements of the mosaics to their original positions in the walls. It will be seen that the panels in the southern doorway, at the back of the temple (*a* and *b*, plate 29) suffered more heavily than the panels in the northern doorway (*c* and *d*), and that the outer edges of all the panels suffered more heavily than the inner edges. The latter is easily accounted for by the tendency of all structures to assume the form of a mound when they collapse; the nearer the center of the structure, the better being the state of preservation.

It is more difficult, however, to explain the difference in the state of preservation between the two doorways; possibly the back (south façade) of Temple 11 stood nearer the edge of the substructure than the front (north façade), and when the roof collapsed the south doorway suffered greater damage. Or again, there may have been a roof-comb rising above the rear of the building. If so, its collapse would undoubtedly have done more damage to the back than the front. In any event, there remains much less of the panels in the south doorway than of those in the north doorway. Fortunately, the writer was able to find the lower right-hand corner of the panel on the west jamb of the north doorway—the only outer corner recovered—and from this it was possible to ascertain the original widths of the panels as having been 71 cm. The tops were missing in every case, the maximum height now obtainable being 81 cm., in the present upper left-

¹ Seler, 1902-1908, vol. 1, p. 758.

² Maudslay, 1889-1902, vol. 1 of text, p. 22.

³ The title of this panel in plate 28, *c*, is given incorrectly. It should read "Glyph-panel in the north doorway (east jamb) of Temple 11."

hand corner of the panel on the west jamb of the north doorway. It will appear later, however, that when complete these panels were probably about 1.5 meters high. There were four columns of glyph-blocks in each panel, and probably 8 glyph-blocks to a column, making 32 for each panel, 64 for each doorway, or 128 for both doorways, probably including at least two Initial Series, one on each jamb of the north doorway.

The inscription commences with the panel on the east jamb of the north doorway. (See plate 29, *c*.) As the spectator faces the temple, this panel is on his left, and following the usual Maya practice of reading from left to right and top to bottom in pairs of columns, it is probable that this is the order of reading here.

The first glyph sufficiently preserved to decipher is A6, which looks like the kins of an Initial Series. The next is B6,¹ which is 6 Caban. The day-sign shows clearly, and also the bar of the coefficient. The upper left-hand corner is missing, but the upper right-hand corner is preserved; the stone is smooth, showing there never had been a dot here. The only place a dot could have been was above the center of the bar, and as there is only room for one at this point, the coefficient could only have been 6.




The next glyph, A7, is almost entirely gone; it looks a little like Glyph F of the Supplementary Series, the next, B7, is unmistakably 10 Mol, and B6, B7, therefore, record 6 Caban 10 Mol, the important date already found on the step leading into the sanctuary, and also on Altars V, R, and U. Its Initial Series, as already suggested, is probably 9.16.12.5.17.

The left half of A8 is missing, and B8 is very clearly Glyph C of the Supplementary Series, here shown with a coefficient of 6, the highest value ever found with it. The remaining glyphs in the panel are undecipherable, except D7, which is 6 tuns. Note the late form of the tun-sign. The bottom of the glyph-panel is just 15 cm. above the plaster floor of the doorway.

There are some indications that this date, 6 Caban 10 Mol, in B6, B7 is the terminal date of an Initial Series. In the first place, A5 looks very much as though it may have been the kins of an Initial Series number, and A7 as though it had been Glyph F of the Supplementary Series. Finally, B8 is surely Glyph C of the Supplementary Series. So far as known, Supplementary Series never occur without accompanying Initial Series, and therefore it seems likely that this inscription originally began with an Initial Series which declared the position of the important date 6 Caban 10 Mol in the Long Count. If so, the Initial Series introducing glyph was in A1-B3, the cycles in A4, the katuns in B4, the tuns in A5, the uinals in B5, and the kins in A6.

Turning to the opposite panel, on the west jamb (plate 29, *d*), we find an interesting condition, namely, most if not all of its glyphs are reversed. This applies not only to the elements within the signs themselves, but also to their coefficients. Take for example H7, the fourth glyph in the first

¹ The glyphs in these four panels are designated on the basis of 4 columns of 8 glyph-blocks each; B6 therefore is the third to last glyph in the second column.

column, counting from the left. Not only is its coefficient of 18 on the right, but the elements of the month-sign there recorded, Zac, are actually reversed. Note the superfix , which should have the element now on the right on the left instead, the cross-hatched circle and concentric dots , which should be turned with its concavity to the right instead of to the left, and finally the wedge of dots , which should be on the left of the cross-hatched circle instead of the right. In other words, each element has not only been transposed in position, but reversed in direction.

Another case in point is the katun-sign in H8. Not only is the coefficient 3 on the right, but the half-circle of dots in the Cauac element of the superfix is on the left instead of the right, as usual. We note the same inversion of the hotun-glyph in G8. Other examples of this are H5 and F8, where the coefficients, 5 and 15 respectively, are reversed, and H6 and G5, where the signs are reversed.

In G7 there is a very illuminating example of this inversion. This glyph is clearly Glyph A of the Supplementary Series, with a coefficient of 10 on its *left* side. The writer has shown elsewhere (Morley, 1916, p. 372) that the regular position for the coefficient of Glyph A is either to the right of, or below the sign it modifies, that is, just the reverse of the position of all other Maya coefficients. In this particular panel, therefore, where all the positions are reversed, the coefficient of Glyph A is also reversed; that is, it appears at the left side of the sign it modifies, whereas its normal position is to the right or below. In a word, the sculptor of this text went out of his way to reverse the position of this particular coefficient as well as of all the others, so that it would be different from the others, and its necessary individuality thereby preserved.¹

It is apparent from the foregoing that in the delineation of the glyphs of this panel the elements have been intentionally reversed, those facing to the right having been deliberately turned to the left and *vice versa*, but why? In answering this question let us first cite one other possible parallel.

On Stela 6, at the recently discovered city of Uaxactun, in northern Guatemala² (see plate 1), the last half of the Initial Series, the uinals, kins, day, and month, presented on the left side of the monument facing it, all have their coefficients on their right sides, contrary to the universal practice in these glyphs. The first half of this Initial Series on the opposite side of the monument is perfectly normal, the cycle, katun, and tun coefficients appearing in

¹ With the exception of Glyph A of the Supplementary Series, three glyphs on the reviewing-stand in the Western Court here, and the uinals, kins, and day of the Initial Series on Stela 6 at Uaxactun, Maya coefficients are invariably placed either above or to the left of the signs they modify. In Glyph A, on the contrary, with but three known exceptions—four, if we include the present example—the coefficient is attached either to the right or below the sign it modifies. The reason for this, as the writer has shown in the reference cited above, was that the coefficient of Glyph A is joined to the sign it modifies by addition and not by multiplication, the process by which all other coefficients are joined to their accompanying signs. In order to distinguish between multiplication and addition, a different position for the numeral modifiers was therefore adopted. Hence the inversion of the regular practice in Glyph A in this text. The three exceptions noted above are: Stela I and K and Structure 1 at Quirigua, all late.

² This site was discovered by the Carnegie Institution Central American Expedition of 1916. See Morley, 1916a, pp. 337-341.

their regular positions, on the left of the signs they modify. The only explanation for this unique feature here would appear to have been the desire to have both sets of coefficients appear on the sides of the glyphs adjacent to the front of the monument, and the only way to have achieved this was to have the coefficients of the glyphs on the left side stand at the right instead of the left of the glyphs they modify. The same desire, *i. e.*, to have the coefficients appear on the sides of the glyphs next the outside of the doorway, probably caused the inversion of the regular order, also noted in the panel under discussion, since the glyphs and their coefficients, with the single exception of Glyph A noted above, which itself is always an exception to the regular practice, all face toward the front or exterior of the temple as one enters the north doorway. This practically unique condition has also apparently influenced the order of reading this text, which, as we shall presently see, is probably to be read from right to left and top to bottom in pairs of columns instead of from left to right and top to bottom in pairs of columns as elsewhere. That is to say, the usual order of reading, as well as the signs themselves, has been reversed in this panel. This text therefore begins in the upper right-hand corner with E1 and is read in pairs of columns from right to left and top to bottom as follows: E1, F1, E2, F2, E3, F3, E4, F4, E5, F5, E6, F6, E7, F7, E8, F8, G1, H1, G2, H2, etc., on through G8, H8, in the lower left-hand corner, H8 (3 katuns) being the last glyph. By such an arrangement both panels could be read from the outside going in.

The internal points of evidence tending to corroborate this order of reading are the following: The first surely decipherable glyph is 11 Ahau in H4, and following this in G5 is a glyph which contains the essential elements of the first *two glyphs* of the Supplementary Series, G and F, brought together in one glyph-block, the superfix being the essential characteristic of Glyph F (note the careful inversion of these elements also) and the kin-sign the essential element of Glyph G. The next glyphs, H5, G6, and H6 are also probably glyphs of the Supplementary Series, since the next, G7, is Glyph A, the closing sign of the series. After this, that is, on its *left*, there follows in H7 the month 18 Zac, and finally the next glyph, G8, declares the "end of a hotun." The last glyph in the panel, H8, is 3 katuns, though its connection with the above date is not apparent.

We have recorded here the two parts of a Calendar Round date, 11 Ahau 18 Zac in H4 and H7 respectively, separated by a Supplementary Series in G5-G7, and followed by a hotun-ending sign in G8, sufficient data to fix this date within a period of more than 4,500 years. Referring to Goodman's tables, it will be found that the only hotun in Cycle 9, or in fact for 4,500 years, either before or after Cycle 9, which could end on the date 11 Ahau 18 Zac was 9.14.15.0.0 11 Ahau 18 Zac, less than 40 years before the date we have assumed for the contemporaneous date of Temple 11. Indeed, we need have little hesitation in accepting the above date as the hotun-ending recorded here.

A more serious problem, however, is that raised by the apparent occurrence of a Supplementary Series here without a corresponding Initial Series, which, if true, would constitute a unique example of its kind in the Maya inscriptions. So far as the writer knows, there is no instance on record where a Supplementary Series stands by itself without a corresponding Initial Series¹. Indeed, rather than consider this text an exception to so universal a rule, it seems more probable that the Initial Series which went with this Supplementary Series was originally presented in the upper halves of columns G and H, which have disappeared. This would then be like the panel on the opposite jamb of this same doorway, where the Initial Series has also disappeared, save for a small part of the kin-sign. If H4, H7 does record an Initial Series terminal date, and if the corresponding Initial Series number formerly preceded H4 in columns G and H, as the writer believes, three more glyph-blocks are necessary above G4 and H4 in each column to have recorded the Initial Series introducing-glyph and the cycles, katuns, tuns, uinals, and kins of the Initial Series numbers. This would have added another half meter to the height of the glyph-panel, making it originally between 1.33 and 1.5 meters high.

There are no other decipherable glyphs in this panel. The lower edge is again 15 cm. above the floor of the vestibule.²

The south doorway, as already noted, is almost entirely destroyed, very little of its two panels being recoverable. Standing at the back of the temple, and facing the doorway, the inscription begins with the panel on the observer's left, that is, the one on the west jamb, which reads from left to right and top to bottom in pairs of columns, after the regular Maya order. (See plate 29, *a*.) Unfortunately, only the lower right-hand corner of this panel is preserved, and of the few glyphs left, only the last three, D7-D8, are recognizable. They record a Secondary Series composed of 10 tuns (c8) (note the late form of the tun-sign), 5 uinals, and 3 kins (D7) and a glyph (D8) which usually closes Secondary Series. Unfortunately this number, though perfectly clear in itself, can not be connected with any date.

Turning to the remaining panel, that on the east jamb (plate 29, *b*), this doubtless is to be read from the *outside toward the inside*, that is, from right to left and top to bottom in pairs of columns, like the panel on the west jamb of the north doorway. (Note the coefficient 9, on the *right* of G8 in the next to last column, counting from right to left, and the reversed elements of the last glyph, H8, apparently the sign for Ceh.) Besides the latter the only other decipherable glyph is the day 3 Cib in H7.

The inscription presented on these four panels raises several interesting points. First, as to the order of reading, we have seen that the priests had to depart from the regular left-to-right order in two of the panels, so that in

¹ Morley, 1916, p. 368.

² The writer regards it as particularly fortunate that he was able to recover the six pieces of the mosaic forming glyphs H4 and G4 and the upper halves of H5 and G5, which had fallen from the wall to the floor, and to restore them to their original positions, thus giving the day of the hotun-ending recorded here.

entering the two exterior doorways the inscriptions on all four jambs could be read going in, *i. e.*, from front toward interior in each vestibule. Thus, in plate 29, the text begins with *c* in the front or north doorway, which is to be read from left to right and top to bottom in pairs of columns, the normal order; the next panel, *d*, is to be read from right to left and top to bottom in pairs of columns—an abnormal order; the next panel, *a*, is to be read like *c* again, and the last panel, *b*, like *d*, in short boustrophedon by panels, if we may borrow an analogy from Grecian epigraphy.

Finally the record of the important date 6 Caban 10 Mol, twice in this temple, both times in conspicuous positions, and once probably with its corresponding Initial Series, coupled with the fact that no later dates have been found, would seem to indicate that this was the dedicatory date of Temple 11. If this latter is true, it is, moreover, the first time we have encountered this date with its accompanying Initial Series, unhappily now effaced, or indeed with any other date, the position of which is fixed in the Long Court, namely, 9.14.15.0.0 11 Ahau 18 Zac. The next occurrence of 6 Caban 10 Mol before 9.14.15.0.0 was at 9.13.19.10.17, and the next after at 9.16.12.5.17. The former is 15 years before 9.14.15.0.0 and the latter 37 years after. In spite of the fact that the earlier reading is the nearer here, as will be shown later, the latter is probably the Initial Series value originally intended. A summary of the text follows:

North Doorway, east jamb B6, B7	9.16.12.5.17	6 Caban 10 Mol
North Doorway, west jamb, H4, H7, G8	9.14.15.0.0	11 Ahau 18 Zac
	End of a hotun.	
Step in north gallery leading into the sanctuary, first two glyphs	(9.16.12.5.17)	6 Caban 10 Mol

The first four monuments of this group, Altars V, R, U, and Temple 11, as we have just seen, were probably dedicated on this important date 6 Caban 10 Mol, that is, 6 Caban 10 Mol was their contemporaneous date. This is not true of the remaining monuments of the group, however, as already explained (pp. 295, 296), and these will be described in their proper places in the chronologic sequence.

We have reached now the very zenith of architectural achievement at Copan. During the eight closing years of this katun, 9.16.12.5.17 to 9.17.0.0.0, the Eastern and Western Courts at the Acropolis were completed in their final forms, and during this brief period all the temples surrounding the Eastern Court, Nos. 18, 19, 20, 21, and 21a, were probably erected, as well as the handsome reviewing-stand in the Western Court (see plate 30). Indeed, the closing date of this period, 9.17.0.0.0, is recorded not only on two of these constructions, Temple 21a and the reviewing-stand, but also on two independent monuments, Altars Z and G₃, the latter showing a recrudescence of sculptural activity in the Great Plaza for the first time in 23 years. From this period also probably dates Temple 22, the most magnificent building at Copan, if indeed not in the entire Maya area, and during the following decade the crest of the sculptural wave was reached in Stelæ C, H, F,

and 4. The city was at last at the flood tide of its architectural and sculptural development, a period relatively comparable to those precious few years of Greek art when Scopas, Phidias, and Praxiteles wielded their magic chisels.

Before taking up the monuments dating from 9.17.0.0.0, it is first necessary to describe Temple 22, which probably is to be referred to the eight years between 9.16.12.5.17 and 9.17.0.0.0.

TEMPLE 22.

Provenance:	On the north side of and facing the Eastern Court at the Acropolis, Main Structure. (See plate 6.)
Date:	9.16.12.5.17 6 Caban 10 Mol to 9.17.0.0.0 13 Ahau 18 Cumhu.
Text, (a) photograph:	Gordon, 1896, plate 3, figure 2; plate 4, figure 1. Maudslay, 1889-1902, vol. I, plates 13-15, 16, a, 17, c. Spinden, 1913, plate 3, 2.
(b) drawing:	Maudslay, <i>ibid.</i> , plates 12, 16, b.
References:	Gordon, 1896, pp. 10, 17, 18. Maudslay, 1889-1902, vol. I of text, pp. 27-29. Spinden, 1913, pp. 162 and table 1.

Temple 22 stands in the middle of the terrace on the north side of the Eastern Court. (See plate 6.) It was excavated in 1885 by Maudslay, and is unquestionably the most beautiful and elaborately sculptured building at Copan, if, indeed, not in the entire Maya area.

Running clear across the front is a platform, the ends of which are carried out at right angles to the façade, as far as the base-line of the stairway ascending the substructure upon which the temple proper is built. (See plate 6.) Two large grotesque heads and handsomely carved wing stones extend from the front wall of the temple to the edge of this platform on either side of the stairway. A doorway 2.74 meters wide leads into an outer gallery 10 meters long and 3.04 meters wide; at each end of which there is a doorway giving into a smaller interior chamber, each 6.09 meters long and 3.04 meters wide.

The spectacular feature of Temple 22 is the doorway in the north or back wall of this outer gallery, which gives into the inner chamber or sanctuary proper. The doorway itself is rather narrow, about 1.83 meters wide, but the recess in the back wall, out of which it opens, is 4.5 meters wide. The sill of this recess and doorway are on the same level and are 61 cm. above the floor-level of the outer gallery.

The upper part of the riser is a plain projecting sill, but the lower part is inscribed with two horizontal bands of glyph-blocks, which are divided by three death's heads into four sections of 4 glyph-blocks each, or 16 in all; and as each glyph-block has 2 glyphs, there are 32 glyphs in the text. At each end of this step is a much larger death's head, which projects beyond the riser of the step proper. These serve as pedestals to support two crouching human figures of heroic size, which in turn support on their upraised hands the two heads of a reptilian monster, whose body curls upward in

bewildering ramifications and presumably joined over the middle of the doorway. Maudslay's restoration of this sculpture (1889-1902, vol. 1, plate 12) gives an excellent idea of its character and former magnificence.

The chamber into which such an imposing entrance gave access must indeed have been of peculiar sanctity, even though it is quite plain. It ran the entire length of the building, being 21.33 meters long. The ends are rather narrow, not more than 1.75 meters wide, but the middle section is about 3.66 meters wide. (See plate 6.) During the course of its excavation two stone incense-burners carved in the semblance of grotesque heads, together with some charcoal, were found on the floor. Holes through the jambs and sill of the doorway permitted the hanging of curtains across the opening, thus shutting off this Holy of Holies from the profane during secret parts of the ceremonies practiced herein.

The inscribed step, in spite of the fact that it presents 32 glyphs, in an excellent state of preservation, has only two of a decipherable nature, the first and the last. The former is the day 5 Lamat and the latter the day 5 Eb. No month-sign accompanies either, and since both recurred at intervals of 260 days throughout the Long Count, in order to date this temple even approximately we are forced to rely upon other evidence, such as the stylistic criteria, or its position with reference to Temple 21a, which is datable. From 5 Lamat to 5 Eb is a period of 104 days or just two-fifths of a tonalamatl. The nearest occurrence of either of these days to 9.17.0.0.0 13 Ahau 18 Cumhu, the date of Temple 21a, was 9.16.19.17.12 5 Eb 10 Cumhu, which was only 8 days earlier. If this is the correct date for the latter of these two days, the first is probably 5 Lamat 6 Mac, viz, 9.16.19.12.8 5 Lamat 6 Mac, 104 days earlier. Where the record is so abbreviated that even the corresponding month-parts of the days are wanting, it is idle to attempt to fix such dates accurately, and the readings suggested can not be regarded as in any sense definitive.

Spinden claims with considerable assurance that the sculpture in Temple 22 is the best at Copan: "The most beautiful and perfect sculptures at Copan are those that served to decorate the façade of Temple 22."¹ He also sees certain very close resemblances between Temple 22 and Stela H: "[Temple 22] decorated by fringe of beautiful human heads showing remarkable similarity to face of Stela H."² As will appear later, the date of Stela H is probably 9.17.12.0.0 4 Ahau 18 Muan; therefore, if Spinden is correct here, Temple 22 would be later than Temple 21a, since the latter was dedicated in 9.17.0.0.0. Gordon, on the other hand, offers excellent reasons for believing that this is not the case:

"The excavation of Mound 21 brought to light an interesting building [Temple 21a] occupying the space between Mounds 21 and 22, its walls abutting those of the two mounds. Although neither so large nor so elaborate as Temple 22, and

¹ Spinden, 1913, p. 162. A fragment from this temple is in the Peabody Museum at Cambridge. It is a human head of exceeding beauty. See Spinden, *ibid.*, plate 23, 2.

² Spinden, 1913, table 1, Temple 22.

apparently of less importance, it is one of the largest and most prominent of the temples. From the manner of contact of its walls with those of the mounds, it seems to have been of later construction."¹

An examination of the abutting walls mentioned above led the writer to the same conclusion, in spite of Spinden's analysis of the stylistic criteria. Moreover, its position with reference to the Eastern Court would appear to indicate that Temple 22 was built before Temple 21*a*, since the former occupies the middle of the north side of the court (see plate 6), Temple 21 being built at the northeast corner, possibly at the same time that Temple 22 was going up opposite the middle of the north side; and later Temple 21*a* was crowded in between the two. But Temple 21*a* dates from 9.17.0.0.0, and since Temple 22 is certainly not earlier than Temple 11, we may therefore fix its date to within 7 years, *i.e.*, as being not earlier than 9.16.12.5.17 (Temple 11), nor later than 9.17.0.0.0 (Temple 21*a*).

TEMPLE 21*a*.

Provenance:	Between Temples 21 and 22, at the northeastern corner of the Eastern Court at the Acropolis, Main Structure. (See plate 6.)
Date:	9.17.0.0.0 13 Ahau 18 Cumhu. ²
Text, (a) photograph:	plate 31. Gordon, 1896, plate 3, figure 2, and plate 4, figure 1. Spinden, 1913, plate 3, 2.
(b) drawing:	plate 31.
Reference:	Gordon, 1896, pp. 18, 19.

Temple 21*a*, although one of the largest buildings at Copan, entirely escaped Maudslay's attention, and its existence was made known only by the excavations of the Peabody Museum. This oversight was doubtless due to its inconspicuous location between the two larger, higher, and more imposing buildings, Temples 21 and 22. Indeed, as we have just seen, its walls actually abut against those of the substructures of Temples 21 and 22, the nature of the contact being such as to indicate that Temple 21*a* is the most recent of the three.³ It is fortunate, therefore, that its date has been surely deciphered.

The excavation of Temple 21*a* brought to light the following facts: The façade is now gone. A doorway 2.13 meters wide gives entrance to an outer gallery 7.62 meters long and 2.13 meters wide, the floor of which is 30 cm. higher than the level of the terrace outside. At the eastern end of this chamber is a raised bench 1.52 meters wide, approached by a step 20 cm. wide. At the western end there is a square niche in the wall. In the middle of the northern wall and opposite the entrance is a doorway (plate 31) 2.44 meters wide, leading into the back chamber, which is of the same size as the outer chamber, the floor being 61 cm. higher. This makes a step at the threshold of the inner doorway, the upper course of which

¹ See Gordon, 1896, p. 18, and plate 4, 1, where this relationship appears very clearly.

² For other monuments recording this same hotun-ending, see Appendix VIII.


³ Gordon, 1896, p. 18, and plate 4, 1.

projects 8 cm. beyond the plane of the riser and is 19 cm. high. The face of this sill is sculptured with a single band of glyphs interrupted by three pairs of circular decorative elements (see plate 31), one in the middle of the doorway and one at each end. The writer is inclined to regard these elements as the familiar sign for Venus, perhaps indicating that this building was dedicated to the worship of that planet. Possibly it may even be called the Temple of Venus. The glyphs extend half a meter on either side of the doorway beyond the jambs. So far as one can now judge, there were no other interior sculptures, although the roof has collapsed, carrying with it all the masonry above the doorway.

There are 3 glyph-blocks to the left and 3 to the right of the left and right Venus-signs respectively, and 5 glyph-blocks to the left and 5 to the right of the middle Venus-sign, making a total of 16 for the entire inscription. (See plate 31.)

The first decipherable sign is at E, which records the day 6 Ahau. Although the next glyph, F, looks like the corresponding month ? Zotz, it is not, being the familiar Zotz head with the Ben-Ik superfix; indeed, the month corresponding to this day is not recorded. The next decipherable glyph, 1b, is just to the right of the middle Venus-sign, and may record 2 Ahau (?). The next is N, which records a Secondary Series number composed of tuns, uinals, and kins, and following this in ob, pa is the Calendar Round date 13 Ahau 18 Cumhu and an ending-sign at pb. This date occurred but twice in the Long Count during the Great Period, namely, at 9.17.0.0.0 and 9.19.12.13.0. Since the former ends not only a tun but also a hotun and katun as well, it was doubtless the value intended here, which we may therefore accept as the date of Temple 21a.

We would appear to have here, then, a day 6 Ahau, E, preceding 9.17.0.0.0 13 Ahau 18 Cumhu, ob, pa, by the number in N. Unfortunately the coefficients above the uinal and tun-signs in N are almost entirely destroyed. One thing, however, is evident at the outset. If the day in E is 6 Ahau, and it can hardly have been anything else, the coefficient to the left of the uinal-sign can not be the kin coefficient as usual, but must be the uinal coefficient, since 2 counted either forward or backward from Ahau will not reach Ahau. It matters not whether 6 Ahau or 13 Ahau be the starting-point.

The coefficient above the uinal-sign is indistinct,  but it can hardly have been a bar-and-dot numeral, however, with the possible exception of 2, which we have seen is an impossible value here. Indeed, the only other reading left is 0, which would agree with the fact that the two days recorded are the same. Probably, then, the uinals and kins are 2 and 0 respectively, an inversion of the regular order.¹

The tun coefficient is almost surely under 11. Whatever it is, it must be such that when reduced to kins and added to the uinals reduced to kins, the remainder after division by 13 will be 7; since 7 is the only number which

¹ See Altar U, A2, for an example of this kind, p. 301.

will give 13, the coefficient of the day of the terminal date, *ob*, when added to 6, the coefficient of the day of the starting-point, *E*. The only tun coefficient under 11 fulfilling these necessary conditions is 5, and 5.2.0 counted backward from 13 Ahau 18 Cumhu will give 6 Ahau 3 Cumhu, the position of which in the Long Count can be shown to have been 9.16.14.16.0:

<i>ob, pa</i>	9.17. 0. 0.0	13 Ahau 18 Cumhu
<i>N</i>	5. 2.0	backward
<i>E</i>	9.16.14.16.0	6 Ahau (3 Cumhu)

One other much higher value of the tun coefficient will also give a remainder of 7, namely, 18, but this is so high that it hardly could have been crowded into the space available in *Nb*. (See *Nb*, plate 31.) Note, for example, where 18 is recorded as the coefficient of the month in *pa*, the sign for Cumhu occupies scarcely more than a half of the space to be filled, whereas the tun-sign in *Nb* fills nearly three-quarters of the space available.

Although the point can not be proved, owing to the partial destruction of *N*, it seems probable that *E* indicates the date 9.16.14.16.0 6 Ahau 3 Cumhu, which is less than two years later than the terminal date of the Secondary Series on the pedestal of Stela *N* (see p. 288) and less than three years later than the important date 9.16.12.5.17 6 Caban 10 Mol so generally recorded here at Copan. The second and closing date we may safely accept as 9.17.0.0.0 13 Ahau 18 Cumhu, which doubtless represents the dedicatory date of the temple.

There is another interesting possibility here, though it is scarcely more, unfortunately, since if it were true, it would have fixed the position of the important date 6 Caban 10 Mol to its proper position in the Long Count beyond any doubt. It is possible that *E* may be the day 6 Caban instead of 6 Ahau, and as used here it might be an abbreviation for the important date 6 Caban 10 Mol, indicating the starting-point of the count in *N*, which would then become 7.12.3, and would exactly express the distance from 6 Caban 10 Mol to 9.17.0.0.0 13 Ahau 18 Cumhu, viz:

<i>E</i>	(9.16.12. 5.17)	6 Caban (10 Mol)
<i>N</i>	7.12. 3	
<i>ob, pa</i>	(9.17. 0. 0. 0)	13 Ahau 18 Cumhu

If *N* in this text could only be read as 7.12.3 it would most satisfactorily clear away any doubt as to the true position in the Long Count of the particular 6 Caban 10 Mol so frequently encountered in the Copan inscriptions.

The day-sign in *E* may easily be a head-variant for Caban with the Caban curl appearing on the cheek of the head inside the day-sign cartouche, exactly as in the case of the day-sign of the Initial Series terminal date at B7 on the west side of Stela *D* at Quirigua, where the day 8 Caban is recorded.¹ The cheek of the face in *E*, plate 31, is partially effaced, and such a curl may

¹ Another analogous case is presented by glyph κa u. h. on Zoömorph *G* at Quirigua, where the day *Ik* is recorded, the *Ik* element, which resembles the letter *T*, being applied to the cheek of the human head in the day-sign cartouche. (Maudslay 1889-1902, vol. II, plates 42 and 44.)

have been recorded here originally. The real obstacle to such a decipherment of glyphs E and N, however, lies in the coefficient to the left of the uinal-sign in *Na*, plate 31, which almost certainly is 2, not 3. The writer examined this glyph closely with this very point in mind and was forced to conclude that the central-dot was, and always had been, an ornamental non-numerical crescent.

If it is assumed that a piece has been broken out of it, and that formerly it was just like the two outside dots in shape and size, which interpretation, however, the writer believes demands too much of the original, the rest of this decipherment becomes an easy matter. The uinal coefficient in *ob* occupies more space than the tun coefficient in *pa*, and the former may well have been 12, *i. e.*, having space for not more than 3 bars; and the latter, 7, *i. e.*, having space for not more than 2 bars. All things considered, however, it seems best to reject this interesting possibility and to stand by the first interpretation suggested.

THE REVIEWING-STAND IN THE WESTERN COURT.

Provenance:	At the northern side of the Western Court, built against the base of the substructure of Temple 11, at the Acropolis, Main Structure. (See plate 6.)
Date:	9.17.0.0.0 13 Ahau 18 Cumhu. ¹
Text, drawing:	plate 30.

At the northern end of the Western Court, built against the base of the lofty substructure supporting Temple 11, is a reviewing-stand of four tiers of seats, 16.5 meters long and 2 meters high. (See plate 30.) The back of the top seat is sculptured with a band of glyphs running from end to end and only interrupted by the large central ornament, a human head and shoulders, now badly defaced. On each end of this band there is a large human figure kneeling on one knee, facing toward the center, and holding in one hand a torch-like object, the top of which in each case has unhappily disappeared, as also both of the heads. A pair of intertwining serpents, probably the rattlesnake, as the tails seem to show the typical Maya treatment of rattles, forms the necklace of each, and a larger serpent with protruding tongue, falling in a graceful curl, the tail hanging below, forms the belt. But for these decorations the figures are nude, not even having sandals, wristlets, or anklets. These figures are large sculptured mosaics let into the steep batter of the substructure of Temple 11. The western one is in slightly better condition than the eastern one, *i. e.*, in the latter the forearm and torch-like object have disappeared, but it is evident that both were bilaterally symmetrical with reference to a vertical axis through the ornament in the center of the stand. Owing to the mosaic feature of their construction, they were peculiarly prone to destruction, and it is remarkable that so much has survived the ravages of time.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

The figures stand 1 meter high, and allowing for the now missing heads, and the doubtless elaborate head-dresses, they must originally have been at least 0.75 meter higher, or close to 2 meters for the height of the design above the hieroglyphic band.

On the level of the top seat at each end of the stand there projects a pier, its vertical face flush with the back of the second seat. (See plate 30.) The top of each is sculptured with 2 glyphs and the face with 2, making 4 for each pier. There are $15\frac{1}{2}$ glyph-blocks on each side of the central ornament, and these, with those on the flanking piers, make $4 + 15\frac{1}{2} + 15\frac{1}{2} + 4 = 39$ for the entire text. This imposing construction is clearly not a stairway, since it leads nowhere, the riser of what would be the fifth step (the back of the fourth tier of seats) merging into the steep slope of the substructure of Temple 11. Moreover, these seats or steps are not placed directly in line with the back doorway of Temple 11 above, but, on the contrary, they are in the middle of the north side of the Western Court, of which they command an excellent view. A glance at the map in plate 6 will establish their correlation with the Western Court rather than with Temple 11 beyond any doubt, and will indicate their true function as a reviewing-stand for spectacles, ceremonies, comedies, dances, and the like, which were held in this court.¹ Allowing half a meter for each spectator, this stand would have accommodated about 150 people; probably only the elect of the city were privileged to sit here.

When the writer first visited Copan in 1910 only the eastern third of this stand had been excavated, *i. e.*, the last 11 glyph-blocks, apparently where the work of the Peabody Museum had been suspended. In 1912, while he was at Copan with Morris, another $4\frac{1}{2}$ glyph-blocks were uncovered and the central ornament exposed. It was not until 1915, however, that the left half of the stand was cleared of the débris fallen from Temple 11 above, under which it was deeply buried, and the whole construction brought to light, photographs of it taken, and the inscription copied.

Coming next to the consideration of the inscription, another interesting example of glyphic inversion for the sake of bilateral symmetry, as in the northern and southern doorways of Temple 11, may be noted. Three of the glyphs on the left, A1 on the back of the top seat, and A2b and A4 on the left pier all have their heads facing to the right, *i. e.*, toward the center of the stairway, and the third, A4, clearly the day Ahau, also has its coefficient on its right. This is an unmistakable inversion of the usual practice, doubtless due to the desire to have the glyphs on the two piers face each other and balance.

The first glyph, A1, is of unknown meaning. It would appear not to be a day, since the cartouche and trinal support are wanting and the coefficient

¹ Landa, in describing the ruins of Chichen Itza, northern Yucatan (see plate 1), states that the Maya had theaters: "At some distance in front of the stairway on the north there are two small theaters of stone with four staircases, paved on top, where they say that farces were represented, and comedies for the pleasure of the people." (1881, p. 105.) Similar mounds, *i. e.*, with stairways on one, two, or four sides and apparently without superstructures, are found throughout the Maya area.

8 is at the bottom. Can it represent some new count of which nothing is yet known? The glyphs on the top of the pier A₂, A₃ are indecipherable, but A₄ is very clearly the day 8 Ahau, both the coefficient and head being reversed in position, as noted above.

The next glyph is very puzzling. The tun-sign appears very clearly as the main element with a coefficient of 10¹ to the left. It is evident that some coefficient and period-glyph have been suppressed here, since there are only two coefficients present, and the single period-glyph recorded is the tun-sign. Unfortunately, the writer has been unable to connect this number with any other date in the text.

In B₁ is recorded 13 Zip, and this doubtless belongs with the day 8 Ahau in A₄, giving the date 8 Ahau 13 Zip. There are no other decipherable glyphs on this side of the central ornament, although a few are of familiar form, like J₁, which is the Zotz head. At Q_{1b}, R₁, to the right of the central ornament, is the date 13 Ahau 18 Cumhu, and following this in U₁, V₁, the date 8 Ahau 13 Zip, repeated again. Finally, the last two glyphs in the text, E'₄, E'₅, record the date 13 Ahau 18 Cumhu.

We have here, then, four Calendar Round dates, A₄, B₁, Q_{1b}, R₁, U₁, V₁, and E'₄, E'₅, without, however, the accompanying record of where any one belongs in the Long Count. The second and fourth are the familiar date 13 Ahau 18 Cumhu, which we have already seen is almost certainly 9.17.0.0.0 13 Ahau 18 Cumhu, and we may feel sure that wherever the other two dates may be, the second and fourth are the contemporaneous and probably the dedicatory date of the stand.

The third date is probably 8 Ahau 13 Zip, the month being the unusual variant found only in two other inscriptions, namely, Altar L and Stela N, already described. The fact that the first date is also almost certainly 8 Ahau 13 Zip—the month in B₁ is surely 13 Zip—strongly corroborates this identification of the month-sign in V₁ as Zip.

The next question is, where did the latter date occur in the Long Count nearest 9.17.0.0.0 13 Ahau 18 Cumhu. It can be shown by calculation that 8 Ahau 13 Zip occurred only 3 uinals (60 days) later than the above katun-ending, namely, at 9.17.0.3.0 8 Ahau 13 Zip, and this, therefore, is probably the Initial Series value corresponding with the first and third dates, although the number 3.0 appears nowhere in the inscription. We will see in the description of Altar Q (p. 328) that a similar condition prevailed on this monument also. In the case of Altar Q the count overlaps the hotun-ending the altar was erected to commemorate, 9.17.5.0.0, by only 4 days more, *i. e.*, 3.4.

¹ An inaccuracy should be noted here in the drawing of the four glyphs on the faces of these two piers, A₄, A₅ and E'₄, E'₅, in plate 30. The two upper glyphs, A₄ and E'₄, the days 8 Ahau and 13 Ahau respectively completely fill the face of the pier in each case, leaving no unsculptured band, at the left and right respectively, as shown in plate 30, in which respect they differ from the three glyphs above and the one below in each case, A₁, A₂, A₃, and A₅ on the left-hand pier, and E'₁, E'₂, E'₃, and E'₅ on the right-hand pier. The two bottom glyphs, A₅ and E'₅ have this plain unsculptured band on their left and right sides respectively, the right and left sides being the plain back of the second seat. As shown in plate 30, A₅ has a coefficient of 15. From the photograph, however, it is apparent that the left bar is not numerical, but is this plain, unsculptured band. The coefficient here, therefore, is 10 instead of 15, as shown in plate 30.

ALTAR Z.

- Provenance: On the terrace between the Eastern and Western Courts just east of Temple 11 at the Acropolis, Main Structure. (See plate 6.)
- Date: 9.17.0.0.0 13 Ahau 18 Cumhu.¹
- Text, (a) photograph: Gordon, 1896, figures 9-12.
Maudslay, 1889-1902, vol. 1, plate 113, a.²
- (b) drawing: Maudslay, *ibid.*, plate 112, f-i.
Morley, 1915, figure 83, b.
- References: Bowditch, 1910, p. 136.
Gordon, 1896, pp. 13, 42.
Maudslay, 1889-1902, vol. 1 of text, p. 68.
Morley, 1915, p. 242.

Altar Z is a small rectangular block of stone 56 cm. long, 46 cm. wide, and 76 cm. high. The front is carved with a grotesque head, the back and sides with glyphs, 6 glyph-blocks on a side, or 18 in all. This monument was excavated in 1893 by the Second Peabody Museum Expedition from near the northeast corner of a low mound on the high terrace between the Eastern and Western Courts. It faces east. (See plate 6.)

The inscription opens on the north side (the right facing the altar) with a number in A1, B1 composed of 1.8.1; and in the next glyphs but one, B2, A3, are the Calendar Round date 13 Ahau 18 Cumhu, followed by an ending-sign at B3. We have just seen that this date was recorded in Temple 21a and on the reviewing-stand in the Western Court, both within a stone's throw of this monument, and further, that Temple 11, even nearer (see plate 6), has a date less than 8 years earlier; we are therefore justified in assuming that the 13 Ahau 18 Cumhu here recorded is probably, indeed almost certainly, 9.17.0.0.0 13 Ahau 18 Cumhu, although the Katun 17 itself is not expressed. If this is true, the starting-point of the number, 1.8.1, in A1, B1 can be shown by calculation to have been 9.16.18.9.19 12 Cauac 2 Zac, as follows:

9.17. 0.0. 0	13 Ahau 18 Cumhu
1.8. 1	backward
9.16.18.9.19	12 Cauac 2 Zac

There are several other glyphs of known form, though of unknown meaning, on the back and south side. The close connection between this altar and Temple 21a and the reviewing-stand in the Western Court is further established by the number of the same non-calendric glyphs found in all three.

This altar was doubtless dedicated in 9.17.0.0.0, along with other monuments and temples erected to commemorate this important katun-ending.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² There is a curious error in Maudslay's reproduction of this altar. The print published seems to have been made from the wrong side of the negative; thus all the coefficients are on the right-hand sides of the glyphs instead of the left. Gordon's photographs, however (1896, figures 9-12), show the correct presentation of both the front and north side.

ALTAR G₃.

- Provenance: In the Great Plaza at the Main Structure between
Stelæ F and H. (See plate 6.)
Date: 9.17.0.0.0 13 Ahau 18 Cumhu.¹
Text, (a) photograph: Maudslay, 1889-1902, vol. I, plates 116, 117.
(b) drawing: *Ibid*, 114, K.
References: Bowditch, 1910, table 29.
Maudslay, 1889-1902, vol. I of text, pp. 49, 69.
Spinden, 1913, table I.

Altar G₃ is one of a group of three monuments called by Maudslay Altars G. Stephens describes this altar and G₂ and G₁ as follows: "a mass of fallen sculpture with an altar marked R on the map."²

These three sculptures are not only very similar in style, particularly G₃ and G₂, which are almost twin pieces, but they differ from every other monument in the city, with the single exception of Altar O, which unfortunately has no glyphs, and can not be dated.

Curiously enough, although G₃ and G₂ are almost identical in size, shape, and treatment, the nearest occurrences of their respective Calendar Round dates in the Long Count are 25 years apart, while Altars G₂ and G₁, on the other hand, though presenting greater stylistic divergences, are within 5 years of each other.

Altar G₃ is a narrow slab of stone 1.83 meters long, 25 cm. thick, and 1.09 meters high. The subject portrayed is a double-headed monster of serpentine character, whose body arches upward, making a hump in the middle. Just below the top of this hump and in the bend of the serpent's body on each side is a panel of 4 glyph-blocks, or 8 for the entire inscription. Unfortunately the panel on the south side has entirely scaled off.

The glyphs on the north side, though badly cracked, are all exceedingly clear, and unmistakably record two Calendar Round dates: 7 Ahau 18 Pop at A1, B1 and 13 Ahau 18 Cumhu at A2, B2. There are no ending-signs or prefixes or period-glyphs present, only these two Calendar Round dates, which occurred but twice during the Great Period, namely, at 9.16.15.0.0 7 Ahau 18 Pop and 9.19.7.13.0 7 Ahau 18 Pop and 9.17.0.0.0 13 Ahau 18 Cumhu and 9.19.12.13.0 13 Ahau 18 Cumhu. It is apparent at a glance that the first in each set is the date intended here. To begin with, they mark the ends of two successive hotuns in the Long Count, sufficient reason alone to accept the earlier reading in each case; and second, both the later readings are too late to be historically probable at Copan; and finally, we have seen that the later date, 13 Ahau 18 Cumhu, is recorded in three other places at Copan: Temple 21a, the reviewing-stand in the Western Court, and Altar Z, where it almost certainly has the Initial Series value, 9.17.0.0.0.

It can hardly be doubted, then, that Altar G₃ was erected to commemorate the hotun-ending 9.17.0.0.0 13 Ahau 18 Cumhu, also a katun-ending as well, and the record of the previous hotun-ending 9.16.15.0.0 7 Ahau 18 Pop

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² Stephens, 1841, vol. I, map facing p. 133, and p. 152.

serves to further emphasize the fact. It is unfortunate that the four glyphs on the other side are entirely destroyed, although it is hardly possible that they could have contained matter which would have jeopardized the accuracy of the above conclusions.

ALTAR Q.

- Provenance: In the Western Court, at the western base of Mound 16 at the Acropolis, Main Structure. (See plate 6.)
- Date: 9.17.5.0.0 6 Ahau 13 Kayab.¹
- Text, (a) photograph: Maudslay, 1889-1902, vol. 1, plates 90, 91, 93, a.
(b) drawing: *Ibid*, plates 92, 93, b.
- References: Stephens, 1841, vol. 1, p. 141 and 2 plates opposite p. 142.
Bowditch, 1910, pp. 135, 185, and table 29.
Galindo 1834, Appendix XI, p. 597.
Galindo 1835a, p. 548.
Goodman, 1897, pp. 133, 134.
Gordon, 1896, p. 15.
Maudslay, 1889-1902, vol. 1 of text, p. 60.
Seler, 1902-1908, p. 758.
Spinden, 1913, p. 162 and table 1.
Stephens, 1841, vol. 1, pp. 140-142.
Thomas, 1900, pp. 787, 788.

Altar Q is first mentioned by Galindo, whose admiration it excited sufficiently to call forth a rather detailed description.² It stands on the eastern side of the Western Court between the double stairway ascending the western slope of Mound 16, with which it is obviously correlated. Stephens gives it the letter A in his map.³

This monument is a rectangular block of stone, 1.42 meters square and 74 cm. high, resting on four roughly spherical supports.

The four sides are sculptured with human figures seated cross-legged on glyphs, the figures being of exactly the same type as those on Stela B, Altar L, and more particularly like those on the step in the outer gallery of Temple 11. Indeed, Spinden believes Altar Q and the step in Temple 11 were executed by the same hand:

"The carvings on the interior step of this building (Temple 11) are of the same style as those on some of the independent altars, notably Altars T and Q, and are probably the work of the same sculptor."⁴

Whether this is true or not the writer is not prepared to say. However, the two sculptures are very similar in style, treatment, and technique, and, as will appear presently, it is quite possible they may have been the work of the same sculptor, since they are only 13 years apart.

The seated figures on these two sculptures show closer resemblances to each other than do any other two monuments having this same decorative treatment, *i. e.*, Stela B, Altars L, Q, T, and S, and the step in Temple 11, and this, coupled with their chronological proximity, renders Spinden's claim not improbable.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² Galindo, 1834, Appendix XI, p. 597, and 1835a, p. 548.

³ Stephens, 1841, vol. 1, map facing p. 133 and pp. 140-142.

⁴ Spinden, 1913, p. 162.

There are four of these seated human figures on a side, or sixteen in all. The four on the front or west side face a center panel of two glyphs, two figures on either side. The four figures on the south side and the four on the back (the east side) all face the same way as the two figures on the right of the glyph-panel on the front. The four on the north side, however, face in the opposite direction. Thus, ten of the figures face to the left and six to the right.

The top is entirely covered with glyphs. These are arranged in 6 columns of 6 glyph-blocks each, or 36 in all. Including the 16 on which the figures are seated and the 2 on the front, there is a total of $6+4+4+4+36=54$ for the entire text.

The prominence of the date 6 Caban 10 Mol is again emphasized on this altar, the single pair of glyphs in the glyph-panel on the front recording this date. This is the most conspicuous position on the altar, and the fact that this date is inscribed here is but another indication of its supreme importance. We will assume for the present that its corresponding Initial Series was 9.16.12.5.17. The inscription on the top opens with the date 5 Caban 15 Yaxkin in A1, B1. This occurred during the Great Period at 9.15.6.16.17 and 9.17.19.11.17. For reasons to follow, the former will be found to be the better reading here.

The next date, 8 Ahau 18 Yaxkin, is in B3, A4. This is only 3 days later than the preceding date, and its corresponding Initial Series is therefore probably 9.15.6.17.0. Following this, at A6, is a number composed of 7 uinals and 12 kins, and if this is counted forward from 8 Ahau 18 Yaxkin, the date reached will be 4 Eb 10 Muan. This date is nowhere to be found in the inscription, but the day following it, 5 Ben 11 Muan, is recorded at C1, D1. It seems certain, therefore, that we have an error in the original here: 12 kins, *i. e.*, two bars and two dots, being recorded for 13, *i. e.*, two bars and three dots in A6.¹ The Initial Series of this latter date can be shown by calculation to have been 9.15.7.6.13.

The next calendric glyphs are C6, E1, the most important in the inscription, since they tend to prove that the Initial Series of 6 Caban 10 Mol was 9.16.12.5.17, and also indicate the hotun-ending this altar was erected to commemorate. C6 is very clearly Katun 17 without an ending-sign, however; and D6, E1, the date 6 Ahau 13 Kayab. The natural assumption here is that Katun 17 ended on the day 6 Ahau 13 Kayab, but by referring to Goodman's tables it will be found that this katun ended on 13 Ahau 18 Cumhu, viz, 9.17.0.0.0 13 Ahau 18 Cumhu. The following hotun, however, namely, 9.17.5.0.0, did end on 6 Ahau 13 Kayab, as recorded in D6, E1. Here we have an interesting though unusual condition. The "Katun 17" in C6 is not to be interpreted as ending on the date following it, but was prob-

¹ An examination of the cast of this altar in the Peabody Museum shows the original has 12 kins instead of 13. Two bars and two dots are recorded with a flattened X between the two dots. This is obviously an error in the original, however, since 13 and not 12 kins are necessary to reach the day Ben in C1 from Ahau in B3; and 153 days and not 152 are necessary to reach 11 Muan from 18 Yaxkin—a double check.

ably recorded to indicate that the count had to pass *through* Katun 17 in order to reach the contemporaneous date of the monument. In other words, Katun 17 was the nearest katun-ending before the date recorded.

A similar case has already been noted on the lower hieroglyphic step of Mound 2, where the count starts with Katun 15, followed by the date 1 Ahau 8 Xul. This, we have seen (pp. 234, 235), did not indicate that Katun 15 ended on 1 Ahau 8 Xul, but that Katun 15 was the katun-ending preceding this date, 9.15.17.0.0 1 Ahau 8 Xul.¹ It will be noted that in both these cases the katun-sign is unaccompanied by an ending-sign. This is as it should be, however, if the interpretations suggested are correct, since in neither case is the katun recorded the contemporaneous date, the latter in each case being one of the subdivisions of the following katun.

After 9.15.7.6.13 5 Ben 11 Muan in c1, d1 the count seems to have passed through the important date 9.16.12.5.17 6 Caban 10 Mol on the front of the altar, and through 9.17.0.0.0 13 Ahau 18 Cumhu in c6 to 9.17.5.0.0 6 Ahau 13 Kayab in d6, e1, the current hotun-ending. This hotun-ending, however, is not the final date on Altar Q, as there is a short number of 3.4 (64 days) in e5, carrying the count that distance beyond 9.17.5.0.0; and this is followed by the date 5 Kan 13 Uo in e6. The latter is obviously incorrect, since a day Kan can only have a corresponding month coefficient of 2, 7, 12, or 17. Probably 12 is the value originally intended here, for if 3.4 is counted forward from 6 Ahau 13 Kayab, the date reached will be 5 Kan 12 Uo.² It is a curious coincidence that the two errors in this text, the kin coefficient in A6 and the month coefficient in E6 l. h. are the exact reverse of each other, the former being a 12 for a 13 and the latter a 13 for a 12. This coincidence may possibly explain their presence here, that is, the sculptor may have forgotten himself, carving 12 in A6 instead of in E6 l. h., and 13 in E6 l. h. instead of in A6.

The record of a date later than the hotun-ending the monument was erected to commemorate, while not unknown, is rare enough to cause comment. Several other examples, both here at Copan and elsewhere, are described in connection with the next monument, Altar W', which also has this same feature. The practice seems to have been fairly general, and in all the examples there cited the count overlaps the current hotun-ending by less than a year. Doubtless 9.17.5.3.4 was a date, which it was desired to commemorate on Altar Q, and its distance beyond the current hotun-ending being so short, the count was allowed to lap over by that much, without destroying the character of Altar Q as a hotun-marker. A summary of the text follows.

¹ The writer suggests with some hesitation a third case which may have an analogous construction, namely, Stela C at Nakum. In this text there is the Calendar Round date 2 Ahau 8 Yaxkin at A1, A2, and following in A5, 10 tuns. This date occurs at 9.19.10.1.0 2 Ahau 8 Yaxkin, and the 10 tuns in A5 may record the fact that a Tun 10 had just passed when it was recorded, i.e., 20 days (1 uinal) before.

² The cast in the Peabody Museum shows the month coefficient is 13. This is obviously an error in the original, since the day Kan never could have had a month coefficient of 13 in any month; 12 is the nearest value possible, and, moreover, is indicated by the accompanying calculations, 5 Kan 12 Uo being exactly 3.4 later than 6 Ahau 13 Kayab, as noted above.

Top, A1, B1	9.15. 6.16.17 (3)	5 Caban 15 Yaxkin not recorded
Top, B3, A4	9.15. 6.17. 0	8 Ahau 18 Yaxkin
Top, A6	7.13 ¹	
Top, C1, D1	9.15. 7. 6.13 (1. 4.17. 4)	5 Ben 11 Muan not recorded
Front	9.16.12. 5.17 (7.12. 3)	6 Caban 10 Mol not recorded
Top, C6	9.17. 0. 0. 0 (5. 0. 0)	(13 Ahau 18 Cumhu) not recorded
Top, D6, E1	9.17. 5. 0. 0	6 Ahau 13 Kayab
Top, E5	3. 4	
Top E6	9.17. 5. 3. 4	5 Kan 12 ² Uo

The first three dates are all less than a year later than 9.15.6.14.6 6 Cimi 4 Tzec (Date 11 on the Hieroglyphic Stairway); indeed, the first date above is only 51 days later. This date, we have also seen, occurs four times at the neighboring city of Quirigua, and doubtless corresponds with an important event in the history of both sites. After these first three dates there is a gap of over a katun, as on Altar U (see p. 305), at the end of which occurs the important date 9.16.12.5.17 6 Caban 10 Mol, especially emphasized here by being the only date on the front of the altar. The preceding katun-ending, namely, 9.17.0.0.0, is next recorded, and then the current hotun-ending 9.17.5.0.0 6 Ahau 13 Kayab, the contemporaneous date of the altar. And finally, there is a date 9.17.5.3.4 5 Kan 12 Uo, 64 days later. It should be noted that of the six dates actually recorded on Altar Q, three have a day coefficient of 5.

With the completion and dedication of Altar Q and probably Temple 16, architectural as well as sculptural activity probably ceased in the Western and Eastern Courts; at least no later dates have been found on the Acropolis.³

One more point in connection with the Western Court remains to be considered. Stela P, recording the very early date 9.9.10.0.0 2 Ahau 13 Pop, it will be remembered (see p. 115), stands in the Western Court, not far from Altar Q. We have seen that the structures surrounding the Eastern and Western Courts were probably not commenced prior to 9.16.10.0.0 or at least 9.16.0.0.0, and while it is doubtless true that there were older buildings in this part of the city—indeed, the cross-section of the Acropolis made by the river shows older plaza levels and walls—the final floor-levels of the Western and Eastern Courts were probably not established prior to 9.16.0.0.0, or possibly even later. Obviously, then, Stela P, with a date nearly 150 years earlier, is not in its original position, but must have been moved to the Western Court after the completion of the latter in 9.17.0.0.0. The same also applies to Altars H' and I' at the southern end of the court, which are 80 years earlier than the reviewing-stand at the opposite end. Such re-erections of early monuments in later times at other than their original positions was doubtless not unusual; but the case can rarely be

¹ Incorrectly recorded as 12 in the original.

² Incorrectly recorded as 13 in the original.

³ The exact provenance of Altar W, shown in plate 6 as having been found in the Western Court, is unknown. (See pp. 364, 365.)

proved as clearly as here, where one of the monuments in question, Stela P, actually bears a date 150 years earlier than the earliest dated construction or temple in the immediate vicinity.

After 9.17.5.0.0 the scene of principal sculptural activity shifted away from the Eastern and Western Courts of the Acropolis back to the Great Plaza of the Main Structure and also to Old Copan (Group 9), both of which next became the two chief centers for sculptural embellishment in the valley.

ALTAR W'.

Provenance:	At Group 6, 1 kilometer east of the Main Structure on the west bank of the Copan River.
Date:	9.17.5.0.0 6 Ahau 13 Kayab. ¹
Text, drawing:	figure 46.
Reference:	Morley, 1917c, pp. 286, 287.

Altar W' lies in a small court surrounded by the remains of stone buildings, 1 kilometer east of the Main Structure, on the west bank of the river. It is 94 cm. long, 44 cm. wide, and 37 cm. high. The front, back, and sides are sculptured, the top and bottom being plain. The surrounding buildings were built of squared dressed blocks, and there are a number of sculptured fragments lying on the slopes of the substructures. It is evident from the latter that this group was of no small importance, and that it was handsomely embellished with sculptural mosaics, particularly the temple on the south side. The floor of the court has been silted in to the depth of a third of a meter since the city was abandoned by some former overflow of the river nearby, and it was in this alluvial deposit that Altar W' was found by the First Peabody Museum Expedition in 1891-92, buried in such a way that only its front surface was exposed. This was photographed,² but no record of its provenance seems to have been kept or any mention made of its discovery, nor of the fact that its back and sides were inscribed with glyphs. Indeed, judging from the undisturbed appearance of the altar when first seen by the writer in May 1917, it seems highly probable that the latter fact had been entirely overlooked when the front was photographed in 1892.

The altar, as found in 1917, lay front up, embedded in the earth to within a centimeter of the top of the block. The exposed surface was sculptured with a representation of the two-headed dragon, the uinal head being at the left and the head of the Long Nose God, God B of the Schellhas classification at the right. (See figure 46, *a*.) This face, as already noted, was not the original top of the monument, but its front. Digging along the sides to free it from the earth in which it lay buried, it was found that the two ends were inscribed with glyphs, and when the whole monument was excavated it was found that the back also had been similarly treated.

Facing the altar, the inscription begins on the right end, passes thence across the back, and finishes on the left end, figure 46, *b*, *d*, and *c*, respectively.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² See photograph No. 107, in the Peabody Museum files.

There are 4 glyph-blocks on each end and 10 on the back, making $4 + 4 + 10 = 18$ for the entire inscription.

The text opens (see figure 46, *b*) with the Secondary Series number 9.4 in A1, followed by a glyph frequently seen in Secondary Series at B1*a*, and by a Calendar Round date 6 Ahau 13 Kayab at B1*b*, A2. The next glyph, B2*a*, is of unknown meaning, but the last glyph on this side, B2*b*, is the day

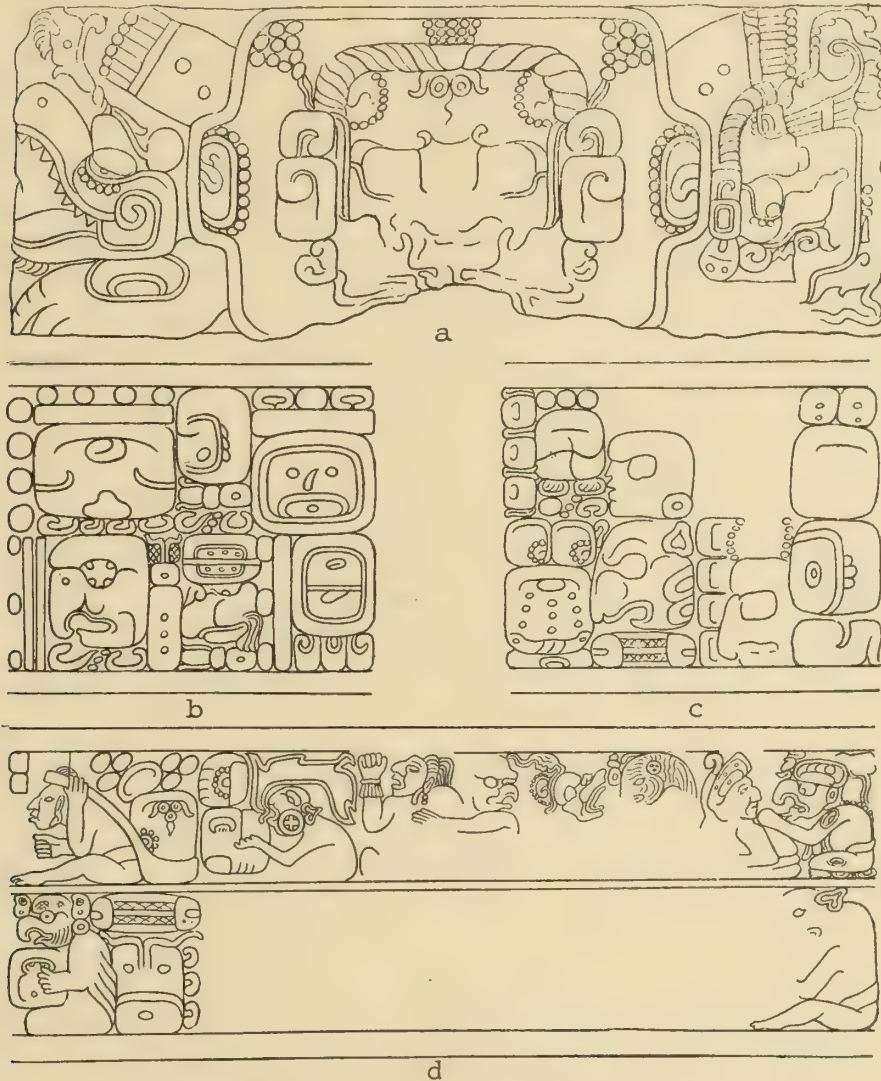


FIG. 46.—Design and inscription on Altar W': *a*, front, *b*, *c*, sides, *d*, back.

8 Kan. Counting forward 9.4 from 6 Ahau 13 Kayab, the first date in the text, the terminal date reached will be found to be 8 Kan 12 Mol, the 8 Kan of which, we have just seen, was recorded at B2*b*. Passing around to the back of the altar, we should expect to find 12 Mol in the first glyph on the back, c1, but such is not the case. Although the coefficient there recorded is 12, the month-sign is not Mol, but either Chen, Yax, Zac, or Ceh, with the best reading at Zac, which is 3 uinals later than Mol.

There are no other calendric glyphs on the back and remaining side, although three glyph-blocks, D2, E2, and F2, have been destroyed, and the case presented by C1 would therefore appear to be irregular.

Three explanations suggest themselves in this contingency: (1) either the missing month-sign was recorded in one of the three effaced glyph-blocks, D2, E2, and F2, or (2) it was omitted altogether, as was sometimes the case, or (3) it was incorrectly recorded as 12 Zac instead of 12 Mol. The last has most in its favor, and is, the writer believes, the correct explanation of the matter. In the first place, C1 is the proper place where the month of this date should be recorded, namely, following the day in B2b. In the second place, the correct coefficient 12 is actually recorded here, as well as a month-sign, which is one of the four months immediately following the one required by the accompanying calculations. In the face of these conditions it seems unnecessary to assume that either of the other two explanations suggested apply, and this irregularity may therefore be explained as an error in the original. Errors in month-signs are extremely unusual, but not altogether unknown. There is a case of this kind on the tablet in the Temple of the Cross at Palenque, where the month Mol is incorrectly recorded for Chen. (See figure 16, D9.)

Attention should also be called to the close similarity between the month-sign in C1 and the month-sign at D on Altar D'. (Compare figures 45 and 46, *d*, where the superfixes are very nearly identical). This superfix looks very much more like that of Zac than those of Chen, Yax, or Ceh, and in the case of Altar D', the month there recorded was deciphered as Zac, although doubtfully. (See pp. 294, 295.) Unfortunately, the calculations on Altar W' indicate an error here, so that although the two month-signs are the same, neither has any corroboratory value for the other. Although neither of the dates on Altar W' is accompanied by any glyphs which fix its position definitely in the Long Count, there is little doubt as to the proper position of either. By referring to Goodman's tables, it will be found that 6 Ahau 13 Kayab closed the first hotun after 9.17.0.0.0, namely, 9.17.5.0.0, and from this fixed point, the second date can be calculated as having been 9.17.5.9.4 8 Kan 12 Mol. The former date could not recur at the end of a hotun until after the lapse of more than 4,500 years either before or after 9.17.5.0.0, and since the style of this altar indicates that it dates from the height of the Great Period, it is obvious that the 6 Ahau 13 Kayab in B1b, A2 could have been none other than the hotun-ending 9.17.5.0.0. These two dates on Altar W' bring it into close chronological relation with Altar Q just described, the first being identical with the next to last date on Altar Q, and the second only 120 days (6.0) later than the last date on Altar Q, the last two both being days Kan. The identity of the two hotun-endings recorded on these two monuments, as well as the close proximity of their final dates, can hardly be accidental, but, as pointed out above, probably reflects some intentional relationship between them.

We again face the same question as in the case of Altar Q, which is the contemporaneous date, the hotun-ending 6 Ahau 13 Kayab or the closing date, 8 Kan 12 Mol? Without, of course, being able to decide this question finally until all the glyphs in the text shall have been finally deciphered, it seems probable that, as in the case of Altar Q, the hotun-ending represents the contemporaneous date of this altar, and that its closing date was "prophetic," that is, in the sense that it was still in the future when the altar was dedicated.

A number of such cases have already been described (pp. 227, 228), but only those where the so-called "prophetic" dates were considerably in advance of the contemporaneous dates, *i. e.*, from 10 to 130 years. There are a number of cases, however, where these "prophetic" dates overlap the contemporaneous dates of their several monuments by less than a year. Four have already been described here at Copan: the latest dates on Stela 1; the reviewing-stand in the Western Court, and Altars Q and W', and at least five others are known elsewhere: Stela 1 at Los Higos (see fig. 62 and pp. 384-386); Stela 1 at Aguas Calientes; Stelæ 7 and 10 at Naranjo; and Stela C at Nakum. (See plate 1 for the location of these cities). The following summary of these texts shows how much each overlaps its current hotun-ending:

COPAN.			
Stela 1.	Reviewing-stand in Western Court.	Altar Q.	Altar W'.
9.11.15. 0.0 14.0 (280 days) 9.11.15.14.0	9.17.0.0.0 3.0 (60 days) 9.17.0.3.0	9.17.5.0.0 3.4 (64 days) 9.17.5.3.4	9.17.5.0.0 9.4 (184 days) 9.17.5.9.4
LOS HIGOS.	AGUAS CALIENTES.	NARANJO.	NAKUM.
Stela 1.	Stela 1.	Stelæ 7 and 10.	Stela C.
9.17.10.0.0 7.0 (140 days) 9.17.10.7.0	9.18.0. 0. 0 13.18 (278 days) 9.18.0.13.18	9.19.0.0.0 3.0 (60 days) 9.19.0.3.0	9.19.10.0.0 1.0 (20 days) 9.19.10.1.0

These overlapping periods are all less than a year in length, varying from 20 to 280 days, and it seems reasonable to conclude therefrom that when such dates exceeded the current hotun-endings by such short periods as these, they in no way interfered with the primary function of such monuments as hotun-markers; rather these several final days were of such importance, and so near chronologically to the previous hotun-endings in each case, that they were included in the record of these previous hotuns rather than in that of their current hotuns.

The style of Altar W', as already noted, is of the best period. All the glyphs on the back are the very unusual full-figure variants, and in point of execution have but few peers in the city. The relief is fairly high and rounded

at the edges, the carving brilliant, and the figures admirably proportioned and arranged. The composition of the individual glyph-blocks is always pleasing, and difficult elements are everywhere freely and easily handled. The effects obtained are extremely decorative. In short, this altar emanates from the best period of Maya art, which at Copan was that most golden of all the katuns, the eighteenth, *i. e.*, from 9.17.0.0.0 to 9.18.0.0.0.

We come next to a group of three monuments—Altar T, Fragment E', and Stela 8—the first two being found at Old Copan (Group 9), and the last at Group 10. (See plate 3.) All three of them are contemporaneous and date from the tonalamatl between the erection of Stelæ C and H on the one hand and of Stelæ F and 4 on the other, the last two stelæ at Copan. This particular tonalamatl was exceedingly important, since within its span fell the first katun anniversary of the important date 9.16.12.5.17 6 Caban 10 Mol. This significant occasion was commemorated by the dedication of these three monuments, one of which, Fragment E', not only probably fixes the position of 6 Caban 10 Mol as 9.16.12.5.17 of the Long Count, but also presents the last Initial Series now known in the city.

Leaving the Main Structure for the present, let us first examine these last few monuments at Old Copan.

ALTAR T.

Provenance:	Formerly with Altar U, just west of the large plain stela in front (<i>i. e.</i> , west) of the high mound at the southeastern corner of Group 9. Removed in 1893 to the center of the village plaza. (See plate 3 and fig. 22, <i>a</i> and <i>b</i> .)
Date:	9.17.12.5.17 4 Caban 10 Zip.
Text, (a) photograph:	Maudslay, 1889-1902, vol. I, plates 118, 119. <i>Ibid</i> , vol. I of text, p. 10.
(b) drawing:	<i>Ibid</i> , plates 95, 96. figure 47.
References:	Maudslay, 1889-1902, vol. I of text, pp. 60-62, 69. Spinden, 1913, table I.

Altar T stands in the plaza of the modern village, just west of Altar U, having been removed thither in 1893 with Altar U from just west of the large plain stela in front of the high mound at the southeastern corner of Group 9 (see p. 300), in which position it is subject to the same undesirable attentions as this other monument. (See figure 22, *a* and *b*.) It is only approximately square, the shortest side being 1.27 meters in length and the longest side 1.90 meters in length. The height varies from 61 to 76 cm.

Across the top is sculptured a crocodile, the tail of which extends over the north side and the claws of the hind legs over the east and west sides. Running from the snout along the line of the back-bone to the extremity of the tail is a single band of glyphs. With the exception of the three extending down on the north side, these are almost entirely effaced. Even the number is uncertain, though there appear to have been ten.

On the south side, which is the front, there are two vertical columns of 4 glyph-blocks each, or 8 in all. Facing these are 4 human figures—2 on each side of the glyph-panel—seated cross-legged on other glyphs, after the same fashion as those on Altars L and Q and the step in Temple 11.

On the east side there are 4 other figures, also seated cross-legged, facing to the left, all grotesque animals except the last. The first may be the bat and the third the jaguar. On this side only the jaguar and the human figure are seated on glyphs.

The west side is the counterpart of the east side. Here again there are 4 figures seated cross-legged, but facing to the right instead of to the left. Again the first 3 are grotesque animals or birds, and the last again an anthropomorphic figure. The first is a parrot. On this side only the human figure is seated on a glyph.

On the back or north side are two animal figures, each seated on a glyph and each holding a glyph in its hand. If the design on the four sides of Altar T were presented as a single band with the panel of 8 glyph-blocks on the south side at the middle, it would be seen that 6 figures face this panel on the left and 6 on the right, and at each end would be a single animal figure, with its back to the other 6. When these two ends are joined the last two figures face each other and form the southern side. (See fig. 47.)

This is an advance in bilateral symmetry over the arrangement of the 16 figures on Altar Q, 10 of which face in one direction and 6 in the other.

There are 6 other figures, all human, distributed over the top of the altar, 3 on the left and 3 on the right of the crocodile. Indeed, so far as the general scheme of the design is concerned, it is bilaterally

symmetrical with reference to an axis drawn through the back-bone of the crocodile. Such an axis has 10 figures on each side of it, or 20 for the entire altar, a very significant number to the ancient Maya, being no less than the unit of progression of their entire numerical system. This is also the number of the similar figures on the step in Temple 11, and four more than the number on Altar Q.

It is not the purpose of the writer to go into the possible symbolism of these 20 figures; it may be pointed out in passing, however, that the human figures—the first, second, and sixth on each side—are of much the same type as the ones on Stela B, Altars S, L, and Q, and the step in Temple 11. This type of seated human figure was a development of the Great Period at Copan, and was copied also at Quirigua, on Altars L, Q, and R. Altar T

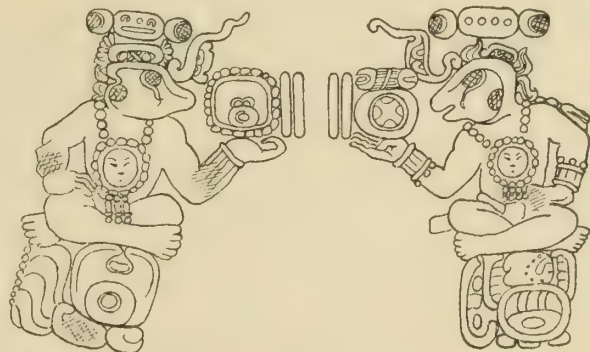










FIG. 47.—Design and inscription on back of Altar T.

is the last monument on which it occurs, and, in the opinion of Spinden, was sculptured by the same hand as Altar Q and the step in Temple 11. Including the glyphs on which the figures are seated, there are about 30 on the monument.

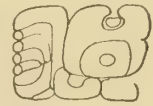
The panel of 8 glyphs on the front or north side has no calendric signs, so far as known. A3 is the sign for God C, and A4 the familiar Zotz head with the Ben-Ik superfix. The same applies to the few legible signs on the top, as well as those on the sides upon which the figures are seated. Indeed, the only calendric glyphs on Altar T, at least now recognizable as such, are two dates on the back or south side. It will be seen in figure 47 that each of the two seated figures holds a glyph in its extended hand, that held by the figure on the left being "10 Mol" and that by the figure on the right "10 Zip." In other words, we have here two month-signs with their corresponding coefficients, but at first sight no corresponding day-signs and coefficients appear. The question at once arises, where are the days corresponding to these month-signs?

We know, to begin with, that they must be either Manik, Ik, Eb, or Caban, since both the month coefficients are 10. This question puzzled the writer for several years, in fact, until he discovered that the heads of the two figures holding the month-signs are themselves the missing day-signs, both being Caban. An examination of these two heads in figure 47 will show that they are in reality nothing more than the sign for Caban with its usual outline changed to form the profile of a grotesque head, the curl  element being utilized for the eye, and the hook  element for the ear. With this point once established, it was natural to look for the missing day-sign coefficients in the corresponding head-dress in each case. In the first figure the head-dress is partially effaced, but in the original the remains of 1 bar and above it a central numerical dot with an ornamental crescent on its right appear very clearly, and this coefficient therefore is 6 , which makes the first head record the date 6 Caban 10 Mol. The coefficient in the head-dress of the second figure is surely 4, and this  date is therefore 4 Caban 10 Zip. But it has been suggested that the Initial Series corresponding to 6 Caban 10 Mol was 9.16.12.5.17. The next step, therefore, is to find out what was the nearest occurrence of 4 Caban 10 Zip in the Long Count to this date. Referring to Goodman's tables, it will be found that the nearest occurrence of 4 Caban 10 Zip to 9.16.12.5.17 6 Caban 10 Mol was in 9.17.12.5.17 4 Caban 10 Zip, exactly 1 katun later, that is, the second date was the first katun anniversary of the first.

9.16.12. 5.17	6 Caban 10 Mol
1. 0. 0. 0	
9.17.12. 5.17	4 Caban 10 Zip

This coincidence is so striking that it may be regarded as validating both these readings. The head of the first figure, together with the glyph in its hand (and note in figure 47 that both are in the same horizontal line),

records the first date (9.16.12.5.17) 6 Caban 10 Mol and the head of the second figure with the glyph in its hand (also in the same line but reversed in order) records the second date (9.17.12.5.17) 4 Caban 10 Zip just 1 katun later; in other words, the time separating the two figures is just 1 katun. It is significant, therefore, in view of this fact, that the second figure is seated on a glyph actually recording "the End of a katun." (See fig. 47.) This, it is true, is not the end of a specific katun in the Long Count, but only the end of 7,200 days from some previous date, namely, the date expressed by the first figure. In view of this fact, may not the glyph on which the first figure is seated have some generalized meaning, such as "Here begins the count"?



This closing date fell between the dates of Stelæ C and H on the one hand, and Stelæ F and 4 on the other, being 117 days after the former pair and 143 days before the latter.

Stelæ C and H	9.17.12. 0. 0	4 Ahau 18 Muan
	5.17	(117 days)
Altar T	9.17.12. 5.17	4 Caban 10 Zip
	7. 3	(143 days)
Stelæ F and 4	9.17.12.13. 0	4 Ahau 13 Yax

One of the dates reached by the calculations on the neighboring monument, Altar U, we have already seen (page 301), is the previous katun anniversary of 9.16.12.5.17 6 Caban 10 Mol, namely, 9.15.12.5.17 8 Caban 10 Mac. In other words, on the two monuments there are three dates just 1 katun apart each, viz:

Altar U	9.15.12. 5.17	8 Caban 10 Mac
	1. 0. 0. 0	
Altar T	9.16.12. 5.17	6 Caban 10 Mol
	1. 0. 0. 0	
Altar T	9.17.12. 5.17	4 Caban 10 Zip

Although both of the dates on Altar T are doubtless correctly deciphered as given, the question which of the two indicates the contemporaneous date of the monument yet remains unanswered. The writer believes the latter date was present time when this altar was dedicated, for the following reasons:

1. It is the later date of the two, and therefore the more likely to have been the contemporaneous date, *a priori*.

2. When Maudslay first photographed Altar T there was still standing under it a block of stone, Fragment E', which clearly records part of an Initial Series reading 9 cycles, 17 katuns, 7, 12, or 17 tuns, the uinals and kins missing. This is apparently the beginning of the Initial Series suggested above for this date. Even the most remote values of the tun coefficient possible here, 7 or 17, could only have been 5 years earlier or later than 9.17.12.5.17, the date suggested above for 4 Caban 10 Zip.

This point, *i. e.*, the date of Fragment E', upon which rests the determination of the exact position of 6 Caban 10 Mol in the Long Count, is so important that it will be taken up in full under the description of that

monument immediately following, and for the present we may accept the date of Altar T as 9.17.12.5.17 4 Caban 10 Zip, the first katun anniversary of 9.16.12.5.17 6 Caban 10 Mol.

FRAGMENT E'.

Provenance: Original position unknown. In 1885 was underneath Altar T in front of the large plain stela just west of the high mound at the southeastern corner of Group 9. Now in the cabildo. (See plate 3 and fig. 22, *e*.)

Date: 9.17.12.5.17 4 Caban 10 Zip (?).

Text, (a) photograph: Maudslay, 1889-1902, vol. I, plate 119, *a*.
(b) drawing: figure 48.

Reference: Morley, 1917*c*, p. 287.

In Maudslay's reproduction of the west side of Altar T (1889-1902, vol. I, plate 119, *a*) there appears underneath this altar a block of stone, Fragment E', carved with several glyphs. In the Maudslay plate this block is shown as upside down.

The Peabody Museum photographs of Altar T, probably taken a decade later (Nos. 108 to 111), do not show this sculptured fragment; and indeed it is clear from them that Altar T itself had been shifted between the time Maudslay took his photographs (not later than 1885) and the time the Peabody Museum ones were taken, probably in 1894 or 1895. It has already been explained how Altar T was shifted from its original position in front of the plain stela at the southeastern corner of Group 9 in 1893, that is, *after* the Maudslay photograph was taken but *before* the Peabody Museum ones were taken. And since Fragment E' appears in the former, but not in the latter, it probably disappeared when this shift was made, to be lost for 24 years, built into the foundations of the house in the middle of the southern side of the village plaza. (See figure 22, H, *e* and *f*.) This is apparent not only from the disappearance of Fragment E' during the decade between 1885 and 1894-95, but also from the fact that Altar T itself is differently supported in the two sets of photographs. For example, in the Maudslay photographs the east side rests directly on the ground, the west or opposite side being supported by a block of stone at each corner. In the Peabody Museum photographs, on the other hand, all four corners of the altar are supported by blocks of stone, the monument standing clear of the ground.

Finally, Maudslay describes the front of the altar as the north side in 1885, and in the corresponding Peabody Museum photograph it is described as "the southwestern side." It is evident, therefore, from the photographic record, even if we did not have the direct testimony of Maria Melendrez and Jacobo Madrid in support of the fact, that when Altar T was removed to the plaza in 1893, Fragment E' disappeared.

When the writer first visited Copan in 1910 this important fragment was still missing, and repeated searches in 1912, 1915, and 1916 failed to bring it to light. During his visit in 1917, however, it was found in the foundation of a house on the south side of the plaza, which was being torn down to make room for a new building. (See figure 22, H.)

The history of this fragment indicates how much probably yet remains hidden in walls and foundations of the houses in the village, and offers hope of other similar finds from time to time.

Fragment E' is only a very small part of an inscription showing one complete glyph-block and parts of two adjacent ones. It is 61 cm. long and 38 cm. wide.

Most happily, the only complete glyph is the katun-sign and coefficient and is very clearly 17 katuns (see fig. 48). The glyph preceding it presents the right half of the cycle-sign. This sequence unmistakably indicates that we have here part of an Initial Series,¹ and we are perfectly justified in supplying the missing cycle coefficient as 9.



FIG. 48.—Inscription on Fragment E'.

The tun coefficient is clearly either 7, 12, or 17, the right-hand edge of the block coming just after the two dots and part of one bar, the lower right-hand corner in particular showing a small part of the latter. (See fig. 48.)

Careful measurements of the katun and cycle-signs and of the katun coefficient led the writer to believe that if the tun-sign was the same width as the cycle and katun-signs there would have been space for just two bars of the same size as those in the katun coefficient. If true, this would make the Initial Series read 9.17.12.?.?. But this block was found underneath Altar T, the best reading of the closing date of which is 9.17.12.5.17 4 Caban 10 Zip, which exactly corresponds with the best reading of Fragment E' so far as the latter goes. Therefore, since these two monuments were associated with each other when found, and since the later date on Altar T is doubtless its contemporaneous date as well, the writer is strongly inclined to fill in the missing parts of the Initial Series of Fragment E' as follows: 9.17.12.(5.17 4 Caban 10 Zip). In other words, the Initial Series on Fragment E' probably records the same date as the later of the two Calendar Round dates on Altar T (4 Caban 10 Zip) and fixes its position in the Long Count beyond all dispute, and in any case it could only record dates in the 5 tuns before and after 9.17.12.5.17, *i. e.*, either in 9.17.7.?.? or 9.17.17.?.?

The close association of these two monuments definitely establishes the fact that the important date 6 Caban 10 Mol recorded so many times at Copan was none other than 9.16.12.5.17 6 Caban 10 Mol. In the first place, Altar T records two dates exactly 1 katun apart, the earlier being 6 Caban 10 Mol and the latter 4 Caban 10 Zip. It has been noted already that the only places during the Great Period where 6 Caban 10 Mol occurred were in 9.16.12.5.17 and 9.19.5.0.17, and therefore the only places where 4 Caban 10 Zip could have occurred are 9.17.12.5.17 and 10.0.5.0.17. But Fragment E', which was found under Altar T, has an Initial Series (9.17.7, 12 or 17.?.?)

¹ The only other count possible here would have been a Secondary Series, and aside from the rarity of Secondary Series involving cycles, this could not be one, because the periods descend from left to right, *i. e.*, cycles, katuns, etc., whereas in Secondary Series they ascend from left to right, *i. e.*, kins, uinals, tuns, katuns, and cycles.

which has the same cycle and katun coefficients as the first of these two possible readings for the Initial Series of 4 Caban 10 Zip. And of the three possible values for its tun coefficient as determined by inspection the second, 12, is the same as the tun coefficient in the first reading suggested for 4 Caban 10 Zip. Together, therefore, these two monuments give not only the Initial Series of 4 Caban 10 Zip, but also that of the much more important date 6 Caban 10 Mol, 1 katun earlier, Fragment E' contributing the cycle, katun, and tun coefficients—enough to check by—and Altar T the terminal date.

Aside from this important contribution to the chronology of Copan, Fragment E' has the added distinction of being the latest Initial Series yet found there. It would appear to have been part of a step, perhaps of some temple, or possibly even part of an altar. The two ends are smooth, *i. e.*, not fractured, and have been dressed for close fitting against other blocks, as indeed the exigencies of the text demand. The great importance of this fragment lies in the fact that it gives the position of the first katun anniversary of the date 6 Caban 10 Mol in the Long Count, and therefore of 6 Caban 10 Mol itself as well, a fact postulated by the preceding monuments of this group, but here made reasonably sure for the first time. Before presenting a summary of the inscriptions recording this date, however, one other monument yet remains to be described, namely, Stela 8.

STELA 8.

- Provenance: Now destroyed. Originally stood in the village cemetery 1 kilometer southwest of the village plaza, at Group 10. (See plate 3.)
- Date: 9.17.12.6.2 9 Ik 15 Zip.
- Text, (a) photograph: plate 32.
Maudslay, 1889-1902, vol. 1, plate 109, *a*.
- (b) drawing: *Ibid.*, plate 109, *a* and *b*.
- References: Bowditch, 1910, p. 179.
Gordon, 1896, p. 38.
Maudslay, 1889-1902, vol. 1 of text, p. 67.
Spinden, 1913, p. 160 and table 1.

Stela 8 formerly lay in the village cemetery, about half a mile southwest of the village plaza. A few months prior to Spinden's visit in 1912, however, it was broken up, together with Stela 9, to serve as the foundation of a wall then in course of construction around the cemetery. Serious as this loss is, it is somewhat mitigated by the fact that the Peabody Museum secured excellent molds of both monuments some years prior to their destruction.

Stela 8 was found by Owens in 1893 in the bush southwest of the village under circumstances of peculiar interest in view of its late date. Says Gordon in this connection:

"It [Stela 8] seems to have stood upright supported on either side by two other stones of an equal size with it, but lying flat. One of these [Stela 9] had originally hieroglyphs on all four sides—two of these sides being well preserved, while the others are almost totally destroyed. The same is true of [Stela] 8."¹

¹ Gordon, 1896, p. 38.

It should be noted in passing that Gordon is wrong in saying that Stela 8 was sculptured on all four sides. Maudslay distinctly states that it had inscriptions on two faces only;¹ and this was the writer's conclusion when he examined the monument in 1910. The two broad faces were sculptured with glyphs and the narrow sides left plain, a reversion in arrangement to Class 2 of the Early Period.

If Stela 8 was originally supported by Stela 9 and another plain slab (both visible in Maudslay's photograph, *ibid.*, 1889-1902, vol. I, plate 109, *a*), we have here another clear case of secondary usage. We have already seen that other monuments of the Early Period—Stela 24 and Altars J', K', X, Y, and A', for example—were reused in the foundations of later monuments; and it is not at all surprising, therefore, to find the same condition obtaining here. Stela 9 is a very early monument (9.6.10.0.0), and, as we shall presently see, Stela 8 is very late. It is not at all unlikely, in view of the other cases cited, that at the time Stela 8 was erected, more than 200 years after Stela 9, the latter had outlived its usefulness and was ready for the scrap-heap, hence its reuse in the foundations of this later monument.

Each side of Stela 8 presents a panel of glyphs surrounding a decorative element, a sort of twisted rope, frequently seen on the monuments as far back as the beginning of the Early Period at Copan, on the fronts of Altars L' and M', for example. There are 4 columns of glyph-blocks, the first and fourth columns containing 7 each, and the second and third 3 each, making a total of 20 glyph-blocks on each side, or of 40 for the entire inscription. The decorative elements above mentioned occupy the space of the lower 4 glyph-blocks of the second and third columns.

The inscription begins² with the important date 6 Caban 10 Mol at A1, B1. (See plate 32, *a*.) This is followed in D1, A2 by the date 9 Ik 15 Zip. Maudslay incorrectly gives the day-sign as Ahau (*ibid.*, 1889-1902, vol. I plate 109, *b*), but this is obviously an error, since the month coefficient is clearly 15. An examination of the original, moreover, showed that Ik is the day-sign actually recorded.

The presence of the day 9 Ik at D1 and its corresponding month 15 Zip at A2 establishes the order of reading here as A1, B1, C1, D1, A2, B2, C2, D2, etc., instead of A1, B1, A2, B2, A3, B3, etc. This extremely unusual sequence was first pointed out by Bowditch, who reached his conclusions, however, from the date on the other side.³

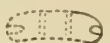
We have already seen that the position of 6 Caban 10 Mol in the Long Count is surely 9.16.12.5.17. It remains, however, to fix the date 9 Ik 15 Zip in its corresponding position. Referring to Goodman's tables, it will be found that 9 Ik 15 Zip occurred but once in the Great Period, as follows: 9.17.12.6.2, which is just 1 katun and 5 kins later than the first date on this

¹ Maudslay, 1889-1902, vol. I of text, p. 67.

² Maudslay figures the other side first (1889-1902, vol. I, plate 109, *a*). The calculations, however, show that the text begins on this side.


³ Bowditch, 1910, p. 179.

monument, *i.e.*, 9.16.12.5.17. This close chronologic proximity to the date of Altar T strongly indicates that the later date is the contemporaneous date of Stela 8. At c3 is 2 katuns, which may indicate that there were only two whole katuns left before the last date on the other side, *i.e.*, Cycle 10.

The inscription on the other side opens with the hotun-glyph in E1,¹ followed by 3 katuns and an ending prefix in F1, followed by the date "7 Ahau 18 Zip End of Cycle 10" in G1, H1, E2, the superfix of the month-sign in H1 being on the left of the main element. (See plate 32, *b.*) Bowditch falls into error here, misreading this date as 13 Ahau 18 ?, and on the strength of the 3 katuns in F1 and the End of Cycle 10 in E2 he restores the effaced month-sign as Cumhu. He thus interprets F1 as 3 katuns, which, if counted forward from the date 13 Ahau 18 Cumhu in G1, H1, will reach the End of Cycle 10 in E2.² The day coefficient in G1, however, is unmistakably 7, and the month-sign in H1 could only have been Zip or Ceh, as its superfix is like that of these two months  only, the loop at the right showing clearly. But we have seen that Cycle 10 ended on the day 7 Ahau 18 Zip, and "the End of Cycle 10" is actually recorded at E2, just following this date. Therefore G1, H1, E2 records "7 Ahau 18 Zip, End of Cycle 10." Moreover, this reading conforms with the general Maya practice of first recording a distance number (possibly 3 katuns here), then its terminal date (7 Ahau 18 Zip here), and finally the period, if any, which this date ends (Cycle 10 here).

It is quite possible that the 3 katuns in F1 may have been counted from the date 9.17.0.0.0 13 Ahau 18 Cumhu, because of the record of the hotun-sign in E1. This seems to be the best explanation of this glyph, but that G1, H1 declared the date from which they were counted it is equally clear can not have been the case.

The glyph following "End of Cycle 10" in E2 is a tun-sign made into a head; G2, H2 are effaced. The destruction of the latter is particularly to be regretted, since it was the day corresponding with the month 10 Zip at E3. Although the loss of this glyph of course prevents certain identification, the writer wishes to suggest the reading 9.17.12.5.17 4 Caban 10 Zip for this fragmentary date in H2, E3, that is, a date just 5 days earlier than the contemporaneous date of Stela 8 (recorded on the other side), and exactly 1 katun later than 6 Caban 10 Mol, the starting-point of this monument; and finally a date which is actually recorded as the contemporaneous date of Altar T. If this is true, it shows a close connection between Stela 8 and Altar T, since both start with the date 9.16.12.5.17 6 Caban 10 Mol; both have the date 9.17.12.5.17 4 Caban 10 Zip, the first katun anniversary of the starting date, and finally both close within 5 days of each other. The record of Cycle 10 here is doubtless purely "prophetic." It was not 10.0.0.0.0 7 Ahau 18 Zip when Stela 8 was erected, but occasion was taken to point out the fact that this important date was approaching, indeed was less than 3 katuns distant, in which sense its record here is prophetic.

¹ The ending-sign in this glyph  is the same late form as the corresponding element in the hotun-glyph on the west jamb in the north doorway of Temple 11. (See plate 29, *d*, G8.)

² See Bowditch, 1910, p. 179.

The remaining glyphs on this side, with the exception of E4 and E7, are effaced. That Stela 8 is very closely connected with the other six and possibly seven monuments, if we include Fragment E', of this "6 Caban 10 Mol" group, seems probable from the fact that many of its non-calendric glyphs are also found on these other monuments; and that it is late is also proved by the character of the tun element in the katun-signs at C3 and F1. These are both the late variant already noted as occurring on the west jamb of the south doorway of Temple 11. A summary of this inscription, which is the last one presenting the date 6 Caban 10 Mol, follows:

Front, A1,B1	9.16.12. 5.17	6 Caban 10 Mol
	(1. 0. 0. 5) ¹	not declared
Front, D1,A2	9.17.12. 6. 2	9 Ik 15 Zip
Front, C3	2.(0. 0. 0)	number of whole katuns before Cycle 10 (?)
Back, E1	End of a hotun.	
	(9.17. 0. 0. 0	13 Ahau 18 Cumhu) not recorded
Back, F1	3.(0. 0. 0)	
Back, G1,H1	10. 0. 0. 0. 0	7 Ahau 18 Zip
Back, E2	End of Cycle 10.	
Back, H2?,E3	(9.17.12. 5.17)	(4 Caban) 10 Zip

If the effaced glyphs D2, E2, and F2 on Altar W' (see fig. 46, *d*) declared the date 6 Caban 10 Mol, it would bring this monument also into very close relation with the others recording this date, and particularly with Altar Q, since it dates from the same hotun as Altar Q (9.17.5.0.0) and has an overlapping Secondary Series of only 6 uinals more.

We are now in a position to present a brief summary of the dates on the several monuments of this group.² The relationships between them appear clearly in the table on page 344, where the several dates are arranged chronologically, the occurrence of any given date on any given monument being noted under that monument. It will be seen from this table that three monuments and one temple, namely Altars, U, R, and V and Temple 11, have 6 Caban 10 Mol as their closing date and are therefore to be regarded as having been dedicated or put into formal use on that date. Two, Altar T and Stela 8, begin with this important date, and one, Altar Q, commences earlier and finishes later, recording this date in passing.

The earliest date in the entire group is the hotun-ending 9.14.15.0.0 11 Ahau 18 Zac on the west jamb of the north doorway of Temple 11. The two next earliest dates (Altar U) are somewhat uncertain, but beginning with 9.15.6.16.17 on Altar Q, for the next 6 years scarcely a year went by without the record of at least one date, and sometimes two or even three, the last date of this cluster being 9.15.12.5.17, exactly 1 katun earlier than 9.16.12.5.17 6 Caban 10 Mol. During the next katun only one date is recorded, the first on Altar V, 9.16.5.3.6, but in 9.16.12.5.17 6 Caban 10 Mol

¹ On page 303 a Secondary Series number of 1.0.0.10 is noted at 11, Altar U, which if counted *forward* from 9.15.12.5.7 will give the important date 9.16.12.5.17. Here 1.0.0.5 (five days less) is to be counted *forward* from this latter date to reach the contemporaneous date of this altar.

² (1) Altar V, (2) Altar R, (3) Altar U, (4) Temple 11 (twice), (5) Altar Q, (6) Altar T, (7) Stela 8, and (8) Fragment F'

seven of the eight monuments come together for the first and only time, four, as we have seen, ending and two beginning on this date, and one, Temple 11, even having this date recorded twice.

Stela 8 and Altar Q have the current katun-ending 9.17.0.0.0, and Altar Q also has the next hotun-ending, 9.17.5.0.0, closing with a date 64 days later.

Altar U.	Altar Q.	Altar R.	Altar V.	Temple 11.	Altar T.	Stela 8.	Fragment E'.
9.14.19. 5. 0 9.15. 0. 0. 0	9.15. 6.16.17 9.15. 6.17. 0 9.15. 7 6.13			9.14.15.0. 0			
9.15. 8.10.12 9.15. 9. 0. 2 9.15. 9.10.17		9.15. 9.13. 0					
9.15.12. 5. 0 9.15.12. 5. 7 9.15.12. 5.17			9.16. 5.3. 6				
9.16.12. 5.17	9.16.12. 5.17 9.17. 0. 0. 0 9.17. 5. 0. 0 9.17. 5. 3. 4	9.16.12. 5.17	9.16.12.5.17	9.16.12. 5.17 (twice)	9.16.12. 5.17	9.16.12.5.17 9.17. 0.0. 0	
					9.17.12. 5.17	9.17.12.5.17 9.17.12.6. 2 10. 0. 0.0. 0 (prophetic)	9.17.12.5.17

The three remaining monuments of the group, Altar T, Stela 8, and Fragment E', continue for a little more than 7 years to the date 9.17.12.5.17, the first katun anniversary of 9.16.12.5.17. Altar T, and probably Fragment E' as well, end on this date, and Stela 8 closes only 5 days later, 9.17.12.6.2, with which latter monument there comes to an end one of the most important group of dates in the Corpus Inscriptionum Mayarum. Indeed, the only comparable series is that presented by the "12 Caban 5 Kayab" group at the neighboring city of Quirigua. In the latter group the corresponding position of the Calendar Round date in the Long Count is fixed by two different Initial Series as having been 9.14.13.4.17; and, as the writer has suggested elsewhere,¹ the glyph which always follows this date in the Quirigua text may perhaps set forth the nature of the corresponding event.

In figure 49 the eight occurrences of 6 Caban 10 Mol at Copan are shown. It is interesting to note in this connection that this date is only 17 uinals (340 days) earlier than the second katun anniversary of Quirigua's most important date, *i.e.*, 9.14.13.4.17 12 Caban 5 Kayab:

9.16.12. 5.17	6 Caban 10 Mol
17. 0	(340 days)
9.16.13. 4.17	8 Caban 5 Yaxkin

which is also recorded at the latter city on the west side of Stela D.

¹ Morley, 1915, pp. 221, 222.

We may never know the exact nature of the event which took place at Copan on 9.16.12.5.17 6 Caban 10 Mol—whether it is historical or astronomical—but its paramount importance can not be doubted any the less on that account, since it was either the starting-point or terminal date of so many important monuments.¹

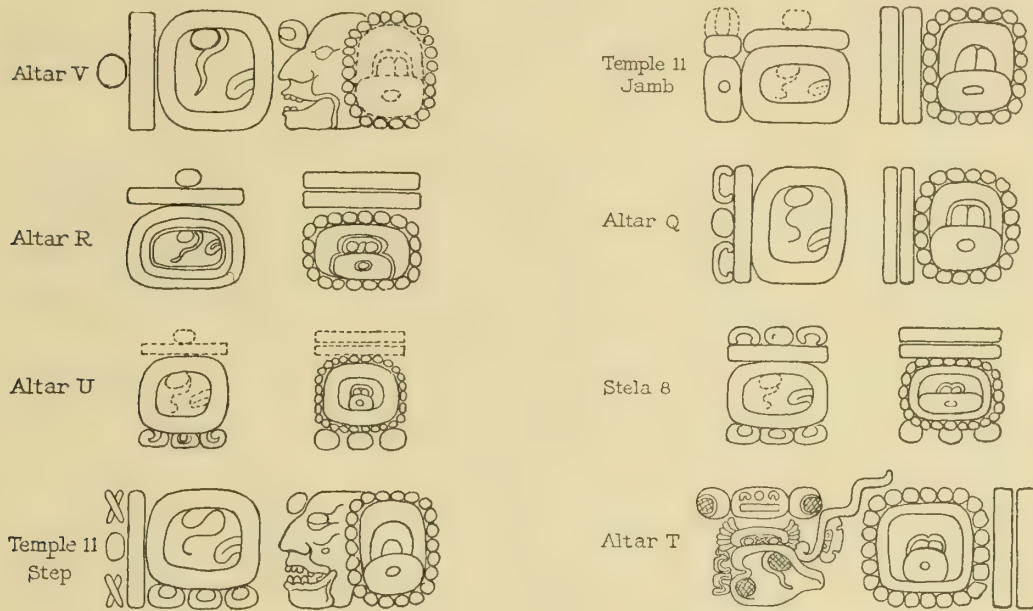


FIG. 49.—Occurrences of the date 9.16.12.5.17 6 Caban 10 Mol at Copan.

STELA C.



- Provenance: In the Great Plaza at the Main Structure just south of Stela D. (See plate 6.)
- Date: 9.17.12.0.0 4 Ahau 18 Muan (?).
- Text, (a) photograph: Maudslay, 1889-1902, vol. 1, plates 39, b, 40.
Gordon, 1896, figure 8.
Catherwood, 1844, plate 4.
- (b) drawing: Gordon, 1896, figure 4.
Gordon, 1902b, figures 20 and 21.
Maudslay, *ibid*, plate 41.
Stephens, 1841, vol. 1, plates opposite p. 155.
- References: Bowditch, 1910, pp. 134, 195, 196.
Goodman, 1897, p. 130.
Gordon, 1896, pp. 35, 36, 39.
Gordon, 1902, pp. 169, 171, 185.
Gordon, 1902b, pp. 250-252.
Maudslay, 1889-1902, vol. 1 of text, pp. 44, 45.
Seler, 1902-1908, vol. 1, pp. 755, 756.
Spinden, 1913, pp. 159, 165, and table 1.
Stephens, 1841, vol. 1, p. 155.
Thomas, 1900, pp. 776, 777, 801.

¹Gordon (1902a, p. 138) gives the Initial Series corresponding to 6 Caban 10 Mol as 9.3.8.12.17. While it is true that one of the occurrences of 6 Caban 10 Mol was in 9.3.8.12.17, the style of the monuments upon which this date appears is so obviously that of the Great Period that Gordon's Initial Series for this date may be rejected outright as a stylistic impossibility.

Stela C stood in the center of the Great Plaza at the Main Structure; it is now fallen and broken into several large fragments.¹ The lower half is *in situ*; and the upper half, broken into two large pieces, now lies nearby. Human figures of heroic size are carved on the east and west faces of the stela, the north and south sides having a single panel of glyph-blocks, 15 on each side or 30 for the entire text. On the basis of this arrangement of the design, Stela C may be assigned to Class 6. The relief is very high, in some cases projecting as much as 8 cm. from the plane of the back of the glyph-panel. Traces of red and yellow paint still adhere to the surface of the stone in protected places.

One of the Peabody Museum Expeditions excavated around the base of this monument and brought to light another cruciform chamber like those found beneath Stelæ 7, I, and M. (See pp. 103-105, 161, 162, 177, 178, 278). It contained only three pieces of rough unpainted pottery, however; nothing as compared with the elaborate caches found in the chambers below Stelæ I and M,² and in front of Stela I.

The inscription probably begins on the south side, although both glyph-panels start with Initial Series introducing glyphs. As will appear later, neither is followed by an Initial Series, nor indeed is one recorded upon this monument.

The introducing glyph on the south side, A1, is regular, except for the comb-like lateral appendages, which are here replaced by a pair of fishes. This variant has already been pointed out in connection with the Initial Series introducing glyph on Stela D (p. 232), where it was suggested the fish may have been the original life-form from which the comb-like lateral appendage was derived.³ Following in A2a is a glyph composed of the head-variant for the cycle-sign, surmounted by a hand holding a small rod, and a tassel postfix.  The coefficient is either 11, 12, or 13. This glyph is extremely important,  since it probably is the sign for the great-great-cycle, which, so far as the writer knows, is found in only two other texts in the Corpus Inscriptionum Mayarum,⁴ *i.e.*, the tablet from the Temple of the Inscriptions at Palenque and Stela 10 at Tikal, figure 50, *c* and *d* respectively. In both these cases the glyph designating the time-period of the seventh order or great-great cycle is composed of the cycle-glyph with a hand superfix and tassel post-fix. (See figure 50, *c* and *d*). The glyph here in question, A2a (figure 50, *a*) is made up of the same elements, and indeed is identical with the great-great cycle glyph on the Tikal monument in figure 50, *d*.⁵ Moreover, the coefficient of the great-great-cycle glyph on the Tikal stela is 11, and we have just seen that 11 is one of the only three readings possible here. A close examination of the original showed that all three

¹ This monument was broken before Stephens's time, as Catherwood's drawing and the accompanying description by Stephens clearly show. See Stephens, 1841, vol. 1, p. 155. ² Gordon, 1896, p. 36.

³ See also Morley, 1915, pp. 28, 69.

⁴ For a third possible exception, see note 2, p. 281.

⁵ Such close resemblance is striking in view of the great distance which separates Tikal and Copan, about 300 kilometers, and the widely differing epochs from which these two monuments date. Stela 10 at Tikal is one of the oldest monuments known in the Maya area (9.3.11.2.0), and Stela C one of the latest at Copan., 9.17.12.0.0, the former being more than 250 years earlier than the latter.

dots of this coefficient are, and apparently always have been, plain, although the left-hand one is a trifle smaller than the other two. (See figure 50, *a*.) Since 11 is required by the calculations here, the writer has little hesitation in accepting this value; possibly the two outside dots were originally painted a different color to differentiate them from the middle numerical dot.¹

The identity of the period glyph and coefficient in A2 with the great-great-cycle sign and coefficient on Stela 10 at Tikal seems to justify the interpretation suggested by the writer for this glyph namely, that the date following in A2*b*, A3*a* occurred in Great-great-cycle 11, which was the current great-great-cycle of Maya chronology.

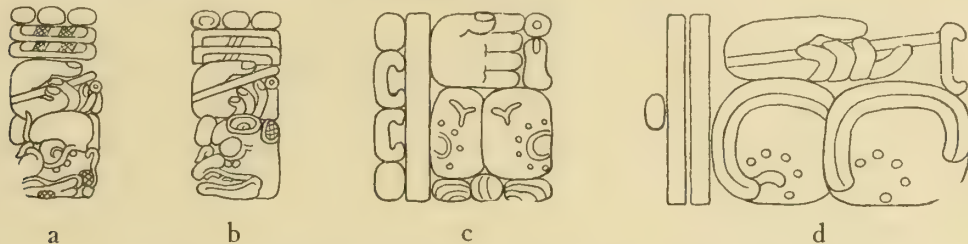


FIG. 50.—Occurrences of the great-great-cycle glyph: *a*, Copan, Stela C, south side; *b*, Copan, Stela C, north side; *c*, Palenque, Temple of the Inscriptions; *d*, Tikal, Stela 10.

The natural thing to expect after the great-great-cycle would be the record of the great-cycle, then the cycle, then the katun, etc., but instead of finding an Initial Series like the one on Stela 10 at Tikal, the next glyphs, A2*b*, A3*a*, unmistakably record the Calendar Round date 6 Ahau 18 Kayab. It is clear at the outset, therefore, that whatever this count may be, it is not an Initial Series; and we should note here that this is another example of the Initial Series introducing glyph *not* followed by a corresponding Initial Series.² Leaving the position of this 6 Ahau 18 Kayab in the Long Count indeterminate for the present, let us continue the examination of the text.

A3*b* and A4 are unknown, but in A5, A6 there follows a Secondary Series number³ 11.14.5.1⁴.0; A7*a* is unknown, and A7*b*, A8*a* is the same Calendar Round date, 6 Ahau 18 Kayab, as recorded above in A2*b*, A3*a*. A8*b* is also unknown, and then in A9 there is the Calendar Round date 6, 7, or 8 Ahau

¹ Maudslay (1889-1902, vol. 1, plate 41, glyph 1*a*) shows this coefficient as 13.

² The occurrence of Initial Series introducing glyphs without accompanying Initial Series is confined exclusively to Copan, so far as the writer is aware, and is found here only on very early or very late monuments. There is, moreover, an important difference even between these two groups. The early monuments presenting this feature (Stelæ 7, 21, 18, 16, 17, 15, 7, and P) have in every case more than one Initial Series introducing glyph, sometimes two, three, and even four. Invariably, however, only one is followed by an Initial Series number which thus belongs to the monument, and by extension to the other Initial Series introducing glyphs on it as well. In the late monuments showing this feature (hieroglyphic step of Mound 2, Stelæ C and F), however, there are no Initial Series, even though in one case (Stela C) there are two Initial Series introducing glyphs on the monument. Here is an important difference indeed. All the early monuments having more than one Initial Series introducing glyph have at least one Initial Series number, but in the later group, whether there be one or two Initial Series introducing glyphs, there is no accompanying Initial Series number. This strongly tends to prove that Initial Series dating had already begun to disappear before the close of the Great Period, a fact commented upon elsewhere (pp. 288, 351, 364, 388, 392, 393).

³ This can be nothing but a Secondary Series number, since its several terms are arranged in ascending order from left to right and top to bottom on the monument.

⁴ Seler falls into error here, reading the uinal coefficient 0 instead of 1. An examination of the original convinced the writer that this is not the case, and that the correct reading is that given above. (Seler, 1902-1908, vol. 1, p. 812).

13 Muan. The remaining glyphs on the south side are either effaced or undecipherable. The question at once arises, what is the relationship (if any) between these three dates, the two 6 Ahau 18 Kayabs in *A2b*, *A3a* and *A7b*, *A8a* and 6, 7, or 8 Ahau 13 Muan in *A9*; and further, have these two dates, 6 Ahau 18 Kayab, one and the same position in the Long Count?

Fortunately the number recorded in *A5*, *A6* is very clearly 11.14.5.1.0, and since this is not an exact number of Calendar Rounds, it can not be the distance from an earlier 6 Ahau 18 Kayab to a later one, and we can therefore answer the latter question with a definite negative; and *A2b*, *A3a* and *A7b*, *A8a* therefore must refer to one and the same date in the Long Count.

It remains, however, to establish the relationship between 6 Ahau 18 Kayab and 6, 7, or 8 Ahau 13 Muan, and to account for the number 11.14.5.1.0.

Bowditch was the first to point out that this number exactly connects the dates 6 Ahau 18 Kayab and 6 Ahau 13 Muan;¹ and it must be admitted that no other reading will develop any relationship whatsoever between this number and these dates. This coincidence is in itself so striking that the writer regards Bowditch's explanation as correct. It should be noted, however, that a close study of the original shows the two outside dots of the day coefficient are, and apparently always have been, plain. The middle dot, though slightly eroded, looks just like the two outside ones, and indeed, were it not for the fact that the calculations so plainly indicate 6 instead of 8 here, the latter would be the preferable reading. Perhaps the outside dots were painted a different color, as suggested for the coefficient of the great-great-cycle-glyph in *A2a* above.

Although the number 11.14.5.1.0 doubtless connects these two dates, there is no indication in the passage as to the position of either in the Long Count, since the corresponding Initial Series or Period Ending (if either date closed an even period) is wanting. Indeed, only two facts may be gathered from the text in this connection:

(1) 6 Ahau 18 Kayab is the starting-point and 6 Ahau 13 Muan the terminal date of the count; and

(2) A very long period of time, over 4,600 years, separated these two dates from each other.

We have already seen, however, that when two dates separated by a vast stretch of time are recorded on the same monument, the earlier date never indicates the present time of the monument and thus the terminal date is never extended far into the future, but that, on the contrary, the later date corresponds roughly with the time the monument was erected. If this is the case here, 6 Ahau 13 Muan would indicate approximately the present time of Stela C; and since the treatment of Stela C is manifestly very late, this 6 Ahau 13 Muan must be sought for some time during the Great Period.

¹ Bowditch, 1910, p. 134.

The date 6 Ahau 13 Muan occurred twice during the Great Period at 9.16.12.13.0 and 9.19.5.8.0. The former is much more likely to have been the Initial Series corresponding to this date for three reasons:


- (1) It is only 143 days later than 9.16.12.5.17 6 Caban 10 Mol.
- (2) The other possible reading 9.19.5.8.0 is too late to be historically probable.
- (3) It is exactly 1 katun earlier than the contemporaneous dates of Stelæ F and 4.

The writer therefore regards 9.16.12.13.0 as the Initial Series corresponding to 6 Ahau 13 Muan in A9.¹ And if this is the Initial Series of the terminal date, the Initial Series of the starting-point can be shown by calculations to have been (1).11.(18).18.2.7.12.0, by supplying the coefficients of the current great-cycle (19), and the current great-great-great-cycle (1) as indicated by the Initial Series on Stela 10 at Tikal, the current great-great-cycle, 11, being actually recorded in A2a.

A9	(1).11.(19). 9.16.12.13.0	6 Ahau 13 Muan
A5, A6	11.14. 5. 1.0	backward
A2b, A3a	(1).11.(18).18. 2. 7.12.0	6 Ahau 18 Kayab

That is, 6 Ahau 18 Kayab was a date which occurred toward the end of the great-cycle (18) previous to the great-cycle of the historic period (19).

The inscription on the north side begins with an Initial Series introducing glyph, B1, of exactly the same character as that on the south side, except its variable central element, which is a grotesque head, whereas the corresponding element on the south side is a human head.

The next glyph, B2a, is the head-variant of the cycle,  surmounted by the same hand holding a rod, and the same tassel post-fix as the corresponding glyph, A2a, on the other side. (See fig. 50, b.) The coefficient again is either 11, 12, or 13, as on the other side.² Since A2a on the south side probably records great-great-cycle 11, and since B2a is almost exactly like A2a, it too may be regarded as designating the same period. The writer's drawing of this glyph, figure 50, b, shows the left dot has an ornament; his notes state that the two right-hand dots are too eroded to determine whether they were similarly treated or not.

The next glyph, B2b, is very clearly 5 Ahau. Maudslay incorrectly shows the coefficient as 15, an impossible value for any day-sign coefficient.³



¹ Bowditch (1910, p. 195) suggests that 6 Ahau 13 Muan may be 9.14.0.0.0 6 Ahau 13 Muan. If this were true, 6 Ahau 18 Kayab can be shown by calculation to have been (1).11.(18).17.19.14.17.0, the coefficients in parenthesis being supplied from those given on Stela 10 at Tikal for the great-great-great and great-cycle glyphs respectively:



A9	(1).11.(19). 9.14. 0. 0.0	6 Ahau 13 Muan
A5, A6	11.14. 5. 1.0	backward
A2b, A3a	(1).11.(18).17.19.14.17.0	6 Ahau 18 Kayab


Bowditch gives the cycle coefficient as 10 instead of 17, believing there were only 13 cycles in a great-cycle instead of 20. The writer has explained that this is probably not the case elsewhere (1915, pp. 107-127). 9.14.0.0.0, however, is too early for this monument, and the writer regards the next occurrence of 6 Ahau 13 Muan, 9.16.12.13.0, as the value originally intended here, although it must be admitted 9.14.0.0.0 is within the range of probability, since it ends a katun of the Long Count.




² Maudslay (1889-1902, vol. 1, plate 41, glyph 1a) gives this as 13.

³ The day-sign coefficients ran only from 1 to 13 inclusive.

His error seems to have arisen through mistaking one rather thick bar with interior decoration  for three thin plain bars . An examination of the original, however, established that the coefficient is clearly 5.

The next glyph, B3a, is quite clearly 8 Cumhu, and B2b, B3a therefore record the Calendar Round date 5 Ahau 8 Cumhu.¹ Before attempting to fix the position of this date in the Long Count, let us examine the rest of the text. The next decipherable glyphs are B7a and B7b, which declare the Calendar Round date 4 Ahau, 3, 8, 13, or 18 Uo, the only uncertainty being in the month coefficient. Bowditch (1910, p. 196) suggests the coefficient may be 13, and Goodman (1897, p. 130) that it was 18. An examination of the original clearly established the presence of a fleshless lower jaw, thus reducing the possible readings to 13 and 18;  and since the head has a frontlet composed of but one element (the characteristic of the head for 8) this coefficient is in all probability 18. B7 would  therefore seem to record the Calendar Round date 4 Ahau 18 Uo. Without attempting to fix this in the Long Count, let us examine the next date in our text, B11.

This records the Calendar Round date 5 Ahau 3, 8, 13, or 18 Uo, again the only uncertainty being in the month coefficient. Goodman (1897, p. 130) suggests it is 8. An examination of the original, however, clearly establishes the presence of a fleshless lower jaw, the two dots frequently seen in this element also appearing quite clearly here; and, since the  upper part of the head has a frontlet composed of but one element, we are again justified in identifying this coefficient as 18. Indeed, the month coefficients in both of the last two dates described are practically identical. B11 therefore records the Calendar Round date 5 Ahau 18 Uo.

The  second to last glyph is another Calendar Round date 4 Ahau 13 or 18?  The day coefficient is surely 4 and the day-sign, in all probability,  Ahau, although it is partially effaced. The month coefficient is either 13 or 18, and the month-sign is effaced. The writer believes this last date is probably 4 Ahau 18 Muan, the same as the last date on Stela H.

We have, then, on the north side, four Calendar Round dates, 5 Ahau 8 Cumhu, 4 Ahau 18 Uo, 5 Ahau 18 Uo, and possibly 4 Ahau 18 Muan, but no record of the positions which they respectively occupied in the Long Count.² Since there is no long number present like 11.14.5.1.0 on the other side, it seems fairly safe to assume that these four dates occurred at or near the time the monument was erected, *i. e.*, during the latter part of the Great Period.

Our first task, therefore, is to ascertain where they occurred during the Great Period, which will be found to have been as follows:

9.17. 2. 0.0	5 Ahau 8 Cumhu	9.16.19. 2.0	5 Ahau 18 Uo
9.19.14.13.0	5 Ahau 8 Cumhu	9.19.11.15.0	5 Ahau 18 Uo
9.17.11. 5.0	4 Ahau 18 Uo	9.17.12. 0.0	4 Ahau 18 Muan
10. 0. 4. 0.0	4 Ahau 18 Uo	10. 0. 4.13.0	4 Ahau 18 Muan

¹ In a letter to Bowditch (1910, p. 196) Maudslay suggests that B2b is probably 13 Ahau instead of 15 Ahau; having previously suggested the correct reading, 5 Ahau, in a letter to Goodman (Goodman, 1897, p. 130).

² The statement of the current great-cycle as 11 in B2a does not help in any way, since all Maya dates occurred in this period.

The second reading in each pair is too late to be historically probable, and all of them may be omitted from consideration. This leaves the first reading in each pair as probably the correct one. A summary of the entire inscription follows:

South side, <i>A2b</i> , <i>A3a</i> and		
<i>A7b</i> , <i>A8a</i>	(1) ¹ .11.(18).18. 2. 7.12.0	6 Ahau 18 Kayab
<i>A5</i> , <i>A6</i>	11.14. 5. 1.0	
<i>A9</i>	(1).11.(19). 9.16.12.13.0	6 Ahau 13 Muan
North side, <i>B11</i>	(1).11.(19). 9.16.19. 2.0	5 Ahau 18 Uo
<i>B2b</i> , <i>B3a</i>	(1).11.(19). 9.17. 2. 0.0	5 Ahau 8 Cumhu
<i>B7</i>	(1).11.(19). 9.17.11. 5.0	4 Ahau 18 Uo
<i>B14</i> (?)	(1).11.(19). 9.17.12. 0.0	4 Ahau 18 Muan

Before attempting to decide which of these last five dates designated the time Stela C was erected, it is first necessary to present the other three monuments of this group (Stelæ H, F, and 4), all of which are closely related to Stela C in style, as well as chronological content. Moreover, the chronological sequence of these four monuments can not be established until all have been described. It must be remembered in this connection that when they were erected Initial Series dating had already begun to disappear at Copan, and it was no longer felt necessary to record the contemporaneous dates of the monuments by their corresponding Initial Series or even period-endings. Indeed, only one of these four monuments, Stela 4, has an Initial Series at all, and even this does not indicate its contemporaneous date.

It will be found as the discussion proceeds that Stelæ C, H, F, and 4 treat of the tonalamatl or sacred year of 260 days and that none of them were hotun-markers like all the other stelæ at Copan.² This fact also may possibly be connected with the failure to use Initial Series in recording their contemporaneous dates.

Finally, since the chronological data in each case are so incomplete, it becomes necessary to rely heavily upon the stylistic sequence of these monuments in order to determine their proper positions in the Long Count; and since this matter can better be presented as a whole, further discussion of the date of Stela C will be postponed until after the descriptions of Stelæ H, F, and 4.

STELA H.

Provenance:	In the Great Plaza at the Main Structure just east of and facing Stela A. (See plate 6.)
Date:	9.17.12.0.0 4 Ahau 18 Muan (?).
Text, (a) photograph:	Maudslay, 1889-1902, vol. 1, plates 54, <i>b</i> , 55, 57, 58, 60, 62, <i>a</i> . Spinden, 1913, plate 19, 4. Catherwood, 1844, plate 1.
(b) drawing:	Maudslay, <i>ibid</i> , plates 56, 59, 61. Stephens, 1841, vol. 1, two plates following p. 150.
References:	Galindo, 1834, Appendix XI, p. 598. Gordon, 1896, p. 35. Maudslay, 1889-1902, vol. 1 of text, pp. 50-52. Spinden, 1913, pp. 157-159, 165, and table 1. Stephens, 1841, vol. 1, pp. 149, 150. Thomas, 1900, p. 778.

¹ The coefficients of the great-great-great-cycle and the great-cycle glyphs suggested here are those found in connection with the corresponding periods on Stela 10 at Tikal.

² Stela 8 (pp. 340-343) and Stela 11 (pp. 369, 370) are the only exceptions known and it is even possible that the latter may not be an exception.

Stela H stands in the Great Plaza at the Main Structure, a few meters east of and facing Stela A. Stephens gives it the letter S in his map.¹ It is 3.66 meters high, 1 meter wide, and about the same in depth. The front or west face is sculptured with the figure of a woman of heroic size in very high relief, which stands almost free of the body of the stela. The head-dress and feather drapery of the figure extend around on and completely fill the two sides. The back is occupied by a grotesque bird-figure at the top, a grotesque mask in the middle, and a panel of 8 glyph-blocks in two columns at the bottom, the whole being surrounded by a beautiful border of feather-work tassels hanging from rosettes. On the basis of this arrangement of the design, Stela H is to be referred to Class 6, the same as Stelæ D and M.

Catherwood's original drawing of this monument, considered by some to be the finest at Copan, is in the Peabody Museum of Harvard University. It is sepia in tone and shows Stela H standing in the dense forest which still covered the valley when Stephens visited the site in 1839.

Catherwood's portrayal is accurate and conveys a forceful idea of the original. He has faithfully rendered the expression of serenity and dignity, so characteristic of the faces on the Copan stelæ, and his delineation of the details of the clothing shows painstaking care. Similarly his drawing of the back of Stela F, the original of which is also in the Peabody Museum, is so accurate that it is possible to decipher the date inscribed there from it.

The inscription on Stela H is very short—only 8 glyph-blocks, not more than 16 glyphs—and only the first glyph-block (A1) presents calendrical matter. This records the Calendar Round date 4 Ahau 18 Muan. This date occurred but once in the Great Period and there at the end of an even tun, namely, 9.17.12.0.0 4 Ahau 18 Muan, which strongly suggests that this is the Initial Series intended to accompany it.

This same Calendar Round date, however, occurs on another monument here in the Great Plaza, namely, on Stela A at c2, although here its position is fixed by means of the corresponding Initial Series as 9.14.19.5.0 of the Long Count, just 1 Calendar Round previous to the position suggested above for Stela H. Since 4 Ahau 18 Muan is the *only* date on Stela H, it follows almost of necessity that it designated the time of erection of the monument; and furthermore, since the same date occurs on another monument less than 20 meters off (Stela A), with the Initial Series 9.14.19.5.0, it would at first appear that this was also the Initial Series of the same Calendar Round date on Stela H.

A careful consideration of the evidence, however, shows that this is probably not the case. In the first place, Stela H is far superior in style to Stela A. Indeed, such are the technical advances of the former over the latter that both could not have been carved at the same time. There are, moreover, at least three other surely dated monuments here at Copan, Stelæ D, M, and N, all later hotun-markers than Stela A, which stand between Stela A and Stela H in the stylistic sequence. On stylistic grounds,

¹ Stephens, 1841, vol. I, map facing p. 133, and pp. 149, 150.



a.



b.

Stela 8, (a) Front, (b) Back. Destroyed in 1912.

Courtesy of the Peabody Museum.

therefore, it is impossible that Stela H could have been made at the same time as Stela A, namely, in 9.14.19.5.0 4 Ahau 18 Muan,¹ and if not in 9.14.19.5.0, the only other date available would appear to be 9.17.12.0.0.

The several points, chronologic as well as stylistic, which tend to establish the date of Stela H as 9.17.12.0.0 4 Ahau 18 Muan are summarized below:

1. The date 4 Ahau 18 Muan occurred but once in the Great Period (to which Stela H undoubtedly belongs), namely, at 9.17.12.0.0.
2. This latter position, moreover, is the only place in Cycle 9 at which 4 Ahau 18 Muan stands at the end of an even tun.
3. This latter position has a peculiar chronological propriety here, since it is the first Calendar Round anniversary of a date recorded on another monument in the Great Plaza, namely, 9.14.19.5.0 4 Ahau 18 Muan on Stela A.
4. The absence of an Initial Series points to the fact that this stela is late, probably dating from the latter part of the Great Period.
5. In the stylistic sequence of monuments at Copan, Stelæ B, D, M, and N stand between Stela A and Stela H, and since the date of Stela N (the latest of these four monuments) is 9.16.10.0.0, it is clear Stela H must be later still. But we have seen that the only other date possible for Stela H, besides 9.17.12.0.0, is 9.14.19.5.0, and since this monument must be placed later than 9.16.10.0.0 on stylistic grounds, the latter must be eliminated, and we are left with 9.17.12.0.0 as the only date available.

All things considered, it may be accepted with considerable assurance that the date of Stela H is 9.17.12.0.0 4 Ahau 18 Muan.

STELA F.

Provenance:	In the Great Plaza at the Main Structure, just north of Altars G ₁ , G ₂ , and G ₃ . (See plate 6.)
Date:	9.17.12.13.0 4 Ahau 13 Yax (?).
Text, (a) photograph:	Maudslay, 1889-1902, vol. I, plates 4, 6, 50, 51, 54, b.
(b) drawing:	Catherwood, 1844, plate 3. Maudslay, <i>ibid.</i> , plate 52, a.
References:	Stephens, 1841, vol. I, two plates after p. 152. Bowditch, 1910, p. 238 and table 29. Galindo, 1834, Appendix XI, p. 598. Goodman, 1897, p. 131. Gordon, 1896, p. 35. Maudslay, 1889-1902, vol. I of text, p. 48. Spinden, 1913, pp. 159, 165, and table I. Stephens, 1841, vol. I, p. 152. Thomas, 1900, p. 778.



Stela F stands in the Great Plaza at the Main Structure just north of Altars G₁, G₂, and G₃. Stephens calls it Statue Q.² The front or west face is carved with a human figure of heroic size whose head-dress and feather-work drapery extend around and completely cover the adjacent sides, in which respect it resembles Stela H. Stela F is 3.66 meters high and 91 cm. wide.

The inscription on the back is presented in a unique and beautiful manner. Two ropes are entwined in such a way as to make five loops, in each one of which there are 4 glyph-blocks, or 20 for the entire text. Out-

¹ The contemporaneous date of Stela A is in reality a tonalamatl later, *i.e.*, 9.15.0.0.0 4 Ahau 13 Yax.

² Stephens, 1841, vol. I, map facing p. 133, and p. 152.

side these loops there is a profusion of feather-work, rosettes, and tassels like those on Stela H. This close similarity in treatment extending even to small decorative details would appear to indicate that Stela H and Stela F can not be far apart in point of time, and on the basis of the arrangement of its design Stela F may be referred to the same class as Stela H, namely, Class 6.

The text opens with an Initial Series introducing glyph in A1, which is followed, not by the customary Initial Series, but by a Calendar Round date, 5 Ahau 3 Mac, in B1, A2. The greater part of the month-sign is effaced,¹ but the superfix  fortunately is preserved enough to show that this sign is Mac. Following this in B2 is the lahuntun-sign already noted in  several places,² and in B3 "End of Katun 15." The remainder of the text, so far as known, has no other calendric glyphs.

The record of 5 Ahau 3 Mac in B1, A2, followed by a lahuntun-sign in B2, indicates that the position of this date here was at the end of some lahuntun in the Long Count. Referring to Goodman's tables, it will be found that the only place in Cycle 9 where 5 Ahau 3 Mac could have stood at the end of a lahuntun, or in fact for 19,000 years either before or after, is the lahuntun-ending 9.14.10.0.0 5 Ahau 3 Mac. This position, moreover, gives point to the record of "End of Katun 15" in B3, since Katun 15 was the next katun-ending after 9.14.10.0.0 *i.e.*, "5 Ahau 3 Mac End of a lahuntun End of Katun 15."

The real difficulty with this inscription, however, lies in reconciling either of these dates with the admittedly much later style of the monument; and it must be granted at the outset in this connection that on the basis of all the data previously utilized in this study, it is necessary to refer Stela F either to 9.14.10.0.0 or 9.15.0.0.0.

Spinden, on the other hand, has proved quite conclusively³ on stylistic grounds that Stela F comes after Stelæ A, B, D, M, and N, and that no matter what dates are recorded upon it, it was not made until some time after 9.16.10.0.0, the date of Stela N. The criteria of stylistic sequence proving this point are so clear and so apparently indisputable that acceptance of his conclusions is well-nigh inevitable. Indeed, the presence of this clearly recorded but too early date, and the entire absence of any glyph, so far as known, which might indicate that the contemporaneous date of Stela F was later, constitute a serious challenge to the accuracy of the conclusions heretofore set forth in regard to the contemporaneous character of the Maya dates; and unless this apparent exception can be satisfactorily explained in some other way, these conclusions, as well as the heretofore

¹ It is interesting to note in this connection that Catherwood's drawing of the east side of Stela F (Stephens, 1841, vol. 1, second plate after p. 152) shows this glyph (A2) was destroyed when he and Stephens were there in 1839.

² The occurrences of the lahuntun-sign here at Copan are as follows: Altar Q', p. 61; Stela 15, p. 88; Stela P, p. 116; Stela 6, p. 183; Altar H', p. 188; Stela J, pp. 195, 200; Hier. Stair., Mound 26, Date 21, p. 256; Altar R (?), p. 299; and Stela F above. Other doubtful occurrences are Stela A, p. 222, and Stela N, p. 280. For other occurrences of this sign see Morley, 1917b, plate 2.

³ The letter from Spinden to the writer, on pages 358, 359, sets forth the stylistic criteria by means of which this conclusion has been reached.

satisfactory agreements between the stylistic and chronologic criteria, would appear to be in danger of breaking down.

In every other monument previously examined, at least one date, when there are several, designates the time at which the monument was erected or dedicated; that is, one date is the contemporaneous date. But in Stelæ F and 4 this can not be the case. Although the dates recorded are associated with fixed positions in the Long Count, not one in either inscription can possibly indicate the time either monument was erected on stylistic grounds. The altars of Stelæ F and 4, moreover, are not inscribed with glyphs, and therefore could not have brought forward the final dates on either of their associated stelæ to later times. Indeed, the condition presented by these two stelæ is unique, so far as the writer is aware, and it would appear at first sight that none of their dates can indicate the times at which they were erected.

The true explanation of this apparently irregular and highly unusual condition the writer believes is afforded by the inscription on Stela H. Here, as we have already seen, there is recorded a single Calendar Round date, 4 Ahau 18 Muan, which is exactly the same as a date on Stela A nearby, whose position in the Long Count is known, *i. e.*, 9.14.19.5.0 4 Ahau 18 Muan. But instead of having this position in the Long Count, the style of Stela H is such as to indicate that it was much later, and since there is only one date present, 4 Ahau 18 Muan, it must have been at least one Calendar Round later, *i. e.*, 9.17.12.0.0 4 Ahau 18 Muan.

Applying this same principle to Stela F, its contemporaneous date would appear to have been the first Calendar Round anniversary either of 9.14.10.0.0 5 Ahau 3 Mac or of 9.15.0.0.0 4 Ahau 13 Yax, namely, 9.17.2.13.0 5 Ahau 3 Mac or 9.17.12.13.0 4 Ahau 13 Yax respectively and presumably of the latter, since it is the later of the two. As will appear in the discussion of the stylistic criteria of these four stelæ, the later position for Stela F best agrees with its position in the stylistic sequence. If this is the true explanation, it is not unlikely that one of the glyphs following B3 declares that there is to be added to the last date recorded, *i. e.*, "End of Katun 15" in B3, one complete Calendar Round, to reach the contemporaneous date of the monument. Only in this way may we reconcile the chronology and art of Stela F.

STELA 4.

- | | |
|-----------------------|--|
| Provenance: | In the Great Plaza at the Main Structure between Stelæ A and B. (See plate 6.) |
| Date: | 9.17.12.13.0 4 Ahau 13 Yax (?). |
| Text, (a) photograph: | Maudslay, 1889-1902, vol. I, plates 103, <i>b</i> and <i>c</i> . |
| (b) drawing: | Catherwood, 1844, plate 2.
Gordon, 1902 <i>b</i> , figure 19.
Maudslay, <i>ibid</i> , plate 104, <i>a</i> .
Stephens, 1841, vol. I, cut on p. 157. |
| References: | Bowditch, 1910, pp. 135, 183.
Gordon, 1896, p. 42.
Gordon, 1902 <i>b</i> , p. 249.
Maudslay, 1889-1902, vol. I of text, pp. 42, 66, 67.
Spinden, 1913, pp. 159, 161, 162, 165, and table I.
Stephens, 1841, vol. I, p. 157. |

Stela 4 is broken off just above the feet. The upper part in falling broke into two large fragments. The lower part of the stela is *in situ*, and underneath it Altar Y was found (pp. 66, 208, 209), and under Altar Y a crudely executed statue of a human figure, said by Spinden to be one of the two most archaic sculptures in stone yet found at Copan. (See figure 67, *b*, and pp. 421, 422.) This monument, the most beautiful of all the Copan stelæ, has been prostrate for at least 80 years, since Stephens, who calls it Statue M, describes it as fallen and lying on its back in his time.¹

Again, we have exactly the same arrangement of the single figure and the inscription as on Stelæ H and F. The front or east face is carved with a human figure of heroic size whose head-dress and feather drapery extend around and completely cover the two adjacent sides, and the back has a vertical panel of two columns of glyph-blocks, 10 in each, or 20 for the entire text. This panel is surrounded by a mass of feather pendants and rosettes, of exactly the same type as those on Stela M and very similar to those on Stelæ H and F, and, on the basis of this arrangement, it may be assigned to the same class as the last two stelæ, H and F, namely, Class 6.

This inscription has one feature which is duplicated in only two other texts in the entire body of the Maya inscriptions, Altar I', also here at Copan,² and Stela 10 at Tikal, namely, in having its Initial Series introducing glyph in a position other than that at the beginning. The text begins with a head-variant glyph in A1, the *second position*, B1, being the Initial Series introducing glyph above mentioned. This condition, barring the two exceptions noted, is without parallel in the Maya writing. The Initial Series were originally so named because, when present, they were always found to stand at the beginning of an inscription, and at no other position. Indeed, the Initial Series introducing glyphs on the above three monuments are the only known exceptions to this rule. This glyph on Stela 4, with the exception of its position, however, is perfectly regular, all the customary elements being present in well-known forms.

The next glyph, A2a, records the cycles of an Initial Series, and the next, A2b, the katuns. The cycle coefficient is destroyed, but we are doubtless justified in assuming it to have been 9. The katun coefficient is very clearly 8.³ The next glyph-block, B2, is entirely destroyed, and since the first half of the next block preserved, A3a, is 10 Ahau, the missing B2 must have recorded the tuns, uinals, and kins of this Initial Series. The next three glyph-blocks, B3-B5, are destroyed, which is particularly unfortunate, as one of them must have recorded the month corresponding to "10 Ahau" in A3a.

¹ Stephens, 1841, vol. 1, p. 157. On the legend to his map facing p. 133, Stela 4, called Statue M, is incorrectly described as "erect." He gives its true condition in the text, however, showing that it was fallen and shattered in his time.

² As already explained, pp. 190, 192, the displacement of the Initial Series introducing glyph on Altar I' was due to the desire to have it preceded by a Secondary Series which would connect its Initial Series with the Initial Series on the sister monument, Altar H'. No such an obvious explanation can be advanced to account for its displacement here, however.

³ These two glyphs have disappeared since Maudslay's photograph of Stela 4 was taken in 1895. His picture shows, however, that even then they were on a thin flake, partially cracked from the larger fragment on which they were inscribed.

The date recorded by this Initial Series was a day 10 Ahau, which occurred some time in Katun 8, and since this day occurred 27 times in Katun 8, we have 27 possible dates here. There is an assumption, however, that may be made, which will reduce this number of possible readings to two. It will be remembered that in the vast majority of cases where the kin coefficient is 0 (*i. e.*, where the day-sign is Ahau, as here), the uinal coefficient is also 0, that is, the ends of even tuns were usually recorded. Assuming this to have been the case here, we will find by referring to Goodman's tables that there were only two tuns in Katun 8 which ended on a day 10 Ahau, namely, 9.8.2.0.0 10 Ahau 13 Mol and 9.8.15.0.0.0 10 Ahau 8 Tzec. Therefore in all probability one of these two Initial Series was recorded in B1-A3a.

But we have seen, further, that hotun-endings were recorded far more frequently than other tun-endings; therefore of these two tun-endings, 9.8.15.0.0 on general principles would be the better value of the two. Let us assume for the moment that the Initial Series of this monument was in fact 9.8.15.0.0 10 Ahau 8 Tzec, and proceed with the examination of the text, to see if any further light is forthcoming from the remaining glyphs.

The next decipherable glyph is at A6, which records the Calendar Round date 11 Ahau 18 Zac, and following this in A6a is a well-known ending suffix, and in A6b "End of a hotun." Referring to Goodman's tables, it will be found that the only hotun in Cycle 9 which ended on the date 11 Ahau 18 Zac was 9.14.15.0.0, and we may therefore accept this as the Initial Series corresponding to this date. But this is exactly 6 katuns later than the best reading of the Initial Series of this stela, namely, 9.8.15.0.0 10 Ahau 8 Tzec. This relation can hardly have been accidental, but tends to indicate that this is the correct reading of the Initial Series.

That 9.14.15.0.0 is the correct Initial Series for 11 Ahau 18 Zac is also proved by the four glyphs following A6a, *i. e.*, A7-B7, which unmistakably record "4 Ahau 13 Yax End of Katun 15," that is, the next hotun-ending after 9.14.15.0.0 in the Long Count, and a katun-ending as well. This is the last decipherable glyph on Stela 4, although the next to last glyph-block of the inscription, B10 records 13? and may have some significance, as will appear later.

Stela 4 is the most advanced of all the Copan stelæ stylistically considered, the last and most notable achievement of the Copan sculptors in portraying the human form.¹ Its contemporaneous date, therefore, can not be 9.15.0.0.0, the last date recorded upon it, since there are at least three earlier monuments in the stylistic sequence (Stelæ D, M, and N), the contemporaneous dates of which are surely later than 9.15.0.0.0. It is not unlikely, therefore, that the same condition obtains here as probably obtained on Stela F, the contemporaneous date of which we have seen was probably 1 Calendar Round later than the latest date actually recorded upon

¹ As a result of Spinden's visit to Copan in 1914, he reached the conclusion that on stylistic grounds Stela 4 is the latest stela there. (See p. 359.)

that monument. If this is also true of Stela 4, its contemporaneous date was 9.17.12.13.0 4 Ahau 13 Yax, *i.e.*, 1 Calendar Round later than 9.15.0.0.0 4 Ahau 13 Yax. Moreover, if this is the case, the last glyph in the text has a peculiar significance otherwise wanting.

The lower three-fourths of the last glyph on the bottom part of the monument is effaced; but the upper part is very clearly the coefficient 13. Now, the current tun in which 9.17.12.13.0 4 Ahau 13 Yax fell ended on a day 13 Ahau and was also a Tun 13, viz, 9.17.13.0.0 13 Ahau 13 Muan. B10b, therefore, may possibly indicate either of these facts.¹

Stela 4 can not possibly have been made as early as 9.15.0.0.0, and was certainly made after Stela H (9.17.12.0.0). The style and arrangement, however, are such as to strongly indicate that it was executed only shortly thereafter; and the date 9.17.12.13.0 seems to fit it in every way.

With this monument the long series of stelæ at Copan comes to an end. But before proceeding to describe the few remaining monuments, all smaller and apparently less important, it is first necessary to discuss the contemporaneous dates of Stelæ C, H, F, and 4 and their relative positions in the stylistic sequence, and finally to point out the chronological interrelationships between them. At the same time, the reasons for arranging them in the chronological order suggested will be made clear and the correctness of this sequence established.

The pioneer work of Spinden on the stylistic sequence of the monuments at Copan and the established reliability of his stylistic criteria are sufficient reasons for quoting him *in extenso* on this point:

"I do not believe there is the slightest doubt concerning the artistic order of Stelæ A, B, D, M, N, and H. Beyond this last one, however, we are somewhat at sea. The artists had then become so skillful that few actual improvements were open to them, and most of the changes result from vogue and increased individuality.

"In writing my memoir, when it came to the actual presentation of evidence, I was careful not to force too far the distinctions which seemed to be best explained by improvements from year to year in the sculptor's art. New fashions were introduced and developed; new opportunities were discovered and improved. There are indisputable developments along several lines, but when two or three monuments that naturally fall close together are concerned it is not always wise to attempt to place each in its proper relation to the others. In the case of the much mooted final group comprising Stelæ C, H, F, and 4, the evidences of sequence are not altogether lacking, although the differences in subject render it difficult to supply any simple test.

¹ It is equally true, of course, that the next tun after 9.15.0.0.0 4 Ahau 13 Yax also ended on a day 13 Ahau, viz, 9.15.1.0.0 13 Ahau 8 Yax, but in this latter case the next tun was a Tun 1, not a Tun 13. Moreover, if 9.15.0.0.0 were the date of this monument, it would have been contrary to Maya practice in such matters to carry the count forward from an even *katun*-ending in their chronological system, to a *tun*-ending. On the other hand, if 9.17.12.13.0 were the date of Stela 4, there was a decided point in recording the current tun-ending, not only because it ended on a day 13 Ahau, but also because it was a Tun 13 itself. The ancient Maya undoubtedly attached some unusual importance to a Tun 13 from the very earliest times down almost to the close of the New Empire. For example, the following early Tuns 13 are recorded at Tikal, Uaxactun, and Palenque: 9.2.13.0.0 (Stela 3, Tikal); 9.3.13.0.0 (Stela 3, Uaxactun), and 9.8.13.0.0 (Temple of the Inscriptions at Palenque). The practice seems to have carried over unto Yucatan, where the writer has found examples of it at Chichen Itza, 11.7.13.0.0 (Temple of the Two Lintels); Holactun (Xcalumkin) 10.9.13.0.0 or 11.2.13.0.0 (Temple of the Initial Series); and Labna, 11.8.13.0.0 or 12.1.13.0.0 (?) (the Palace). (See plate 1.)

"The placing of the feet I regard as a very important minor criterion. All stelæ up to and including Stela A have the feet turned straight outward with the heels together. In Stela B there is a slight drawing back of the heels, which becomes still more marked in Stelæ D, M, and N. When we come to Stela H, the heels are drawn in about 13 cm. from the front of the sculptured block, and the undercutting at the back has progressed much further than in any previous example. As I remember the placing of the feet on Stela C, there is no improvement over Stela H, but the rich details of dress on this monument are carved in much lower and more natural relief. The carving of two figures on opposite sides of one block of stone may have decreased the amount of relief, especially as a strip had to be reserved on the sides for the hieroglyphs. However, when we come to Stelæ F and 4, there is an undoubted advance in the placing of the feet which can readily be seen on cross-sections made at the level of the feet. On Stela 4 the heels are drawn in 29 cm. at the front and the feet are approximately at an angle of 90°. In the carving of Stela F there are other decided improvements to be noted over C and H. The legs and thighs are more nearly freed from the stone, and many details of the head-dress are completely undercut. The general outlines of the original plinth are felt in most Copan stelæ, in that face, torso, and feet project to the same vertical plane. In H there is a sloping-back of the head-dress, but the face projects as far as does the chest. Now in Stela F there is an attempt to get away from this limitation. The chest clearly projects beyond the head and the ornament in front of the girdle projects still farther. Of course, in the seated monuments that adorn the Hieroglyphic Stairway, we have the feet placed in an entirely natural position and moreover there is the proper modeling of the torso.

"The progressive development of feather drapery seen in Stelæ A, D, M, and N reaches its utmost exuberance in H and F. Perhaps if careful drawings of C, 4, and F were available for study other significant details would be apparent. To sum up: the placing of the feet seems to show that F and 4 are later than H and C, and it is my personal opinion that Stela 4 will prove to be the latest stela at the Main Structure of Copan."¹

It is clear from the foregoing that on stylistic grounds:

- (1) Stelæ C, H, F, and 4 are later than Stelæ A, B, D, M, and N; and
- (2) Stelæ F and 4 are later than C and H; and finally,
- (3) Stela 4 is later than Stela F.

It may be stated at the outset, in reviewing the chronologic and stylistic evidence as to the age of these four monuments, that the writer's own studies in this direction have led him to similar conclusions. Going back to the earlier part of the Great Period, it will be remembered that Stela D (9.15.5.0.0) was the first stela at Copan which has no inscriptions on its sides (Class 6). This monument, as we have already seen, was unusual in another respect, namely, in having nothing but full-figure glyphs inscribed upon it. This latter peculiarity, indeed, may have given rise to the former. Full-figure glyphs are large and complicated, and required more space for their portrayal than was available on the rather narrow sides of this monument. At all events, Stela D is the first monument which does not have at least one

¹ This letter was written under date of November 29, 1917.

column of glyphs and sometimes two on its narrow sides, unless of course the sides are left plain, as in the early stelæ of Classes 1 and 2. Instead, the sides are covered with the ramifications of the feather-work of the head-dress and clothing.

The next stela, M (9.16.5.0.0), has this same peculiarity, although here the excuse of full-figure glyphs is lacking. It seems as though the fashion of extending the head-dress and clothing of the main figure around on the two adjacent sides in such a way as to completely cover them may have originated with Stela D, because the full-figure glyphs of its inscription required more space than was available on the sides; and further, that once the fashion was introduced, it proved sufficiently popular to persist in the next monument (Stela M), even though the necessity for it (the use of full-figure glyphs) was wanting.

In the decoration of Stela M there was also introduced another new feature, the feather tassels with rosette tops, which was destined to become the most popular decorative element (so far as stelæ are concerned) of the Great Period. The glyph-panel on the back of this monument is bordered at the top and on the sides by a design of feather-work tassels of great beauty.

Another factor, which doubtless contributed to crowding the inscription from the sides to the back, was the increasingly free treatment of the figure, which in Stela D for the first time stands out from, and free of, the plinth. This was not accomplished, however, without a corresponding loss of space on the sides, which eventually became too narrow for the necessary textual matter to be carved there.

Stela N (9.16.10.0.0), the next stela in the chronologic and stylistic sequence, has *two* human figures, one on each of the broad faces; and since there was no other place to put the inscription except on the sides, it appears there. Even this is hardly an exception to the fashion introduced in Stela D and continued by Stela M, however, since the head-dress and clothing of the two figures of Stela N extend around on the narrow sides, leaving room for only a single column of glyph-blocks between them, and we may conclude that the presence of glyph-blocks on the sides of this stela was only due to the fact that there was no other place to put them, and indeed so great was the necessity for additional space for the inscription that a band of glyphs was carved in the stone paving around the bottom of the stela, the only case of its kind in the *Corpus Inscriptionum Mayarum*. Feather-work tassels and rosettes again appear on Stela N, though more sparingly than on Stela M.

Stela N seems to have served as the model for Stela C (9.17.12.0.0), probably the next monument in the stylistic sequence. Again there are two main figures, one on each of the broad faces; and again the freeing of the figure from the plinth has crowded the inscription into a single column of glyphs on the sides, which is bordered by a rope design. Feather-work tassels and rosettes are used in the decoration of the figures on Stela C somewhat more freely than on Stela N.

Stela H (9.17.12.0.0) is like Stelæ D and M again, having but a single main figure. Here again, however, the feather-work of the head-dress and clothing of the single figure are so elaborate as to occupy all of the space on the adjacent sides, and have thus crowded the inscription onto the back. This shows that the reason Stelæ N and C had inscriptions on their narrow faces was because there was no other place to put them, and not through lack of desire to continue the fashion inaugurated with Stela D. The grotesque bird and head and the panel of glyphs on the back are again surrounded on three sides with feather-work tassels and rosettes.

Stela F (9.17.12.13.0) follows Stelæ D, M, and H in arrangement, having a single main figure, the ramifications of whose head-dress and clothing extend around and completely occupy the adjacent sides, as in the case of D, M, and H. The glyph-blocks on the back are inclosed in the loops of a rope design, the rope being just like the one on Stela C. This is surrounded by feathers, and on the outside by the same feather-tassel and rosette border as on Stela M.

Stela 4 (9.17.12.13.0), the last of the series, is just like Stelæ D, M, H, and F in type. There is but one main figure, and here, as in the other cases, the ramifications of the head-dress and clothing extend around and completely cover the adjacent sides. The panel of glyphs on the back is surrounded on three sides with feather-work tassels and rosettes, almost exactly like those on Stelæ M, H, and F.

Throughout this series of monuments stylistic progress is consistent and sustained, reaching its finest expression in Stela 4. By 9.15.5.0.0 (Stela D) the treatment of the main figure had become so natural, *i.e.*, stood so free from the plinth, that the sides had shrunk to almost nothing and there was no longer space enough on them to carve the inscription, which was consequently restricted to the back. This fashion persisted to the end, moreover, as Stelæ N and C can not be regarded as exceptions, since each has two figures instead of one, and there was no other place to carve their inscriptions except on their sides.

The writer believes it is sufficiently clear from what has been said that the stylistic criteria present justify the following sequence for the last four stelæ, C, H, F, and 4. Let us next examine the several dates inscribed upon them and see whether or not the chronological data present corroborate this arrangement.

Stela C, it will be remembered, has six dates, one in the remote past and five at or near the contemporaneous date of the monument. Stela H has but one date. Stela F has two actually recorded and one more, the contemporaneous date demanded by the stylistic criteria. Finally, Stela 4 has three actually recorded and a fourth, the contemporaneous date demanded by the stylistic criteria. In the table at the top of page 362, these dates have been arranged in their proper chronological sequence, the dates of each monument appearing in a separate column.

STELA C.	STELA H.	STELA F.	STELA 4.
(1).11.(18).18. 2. 7.12.0			9. 8.15. 0.0
		9.14.10. 0.0	9.14.15. 0.0
		9.15. 0. 0.0	9.15. 0. 0.0
9.16.12.13.0			
9.16.19. 2.0			
9.17. 2. 0.0			
9.17.11. 5.0			
9.17.12. 0.0	9.17.12. 0.0		
		9.17.12.13.0 ¹	9.17.12.13.0 ¹

Leaving aside the mythological date (1)11.(18).18.2.7.12.0, the earliest date in the historic period is the first on Stela 4, 9.8.15.0.0; next comes 9.14.10.0.0 on Stela F, next 9.14.15.0.0 again on Stela 4, a hotun later than the preceding, and exactly 6 katuns later than the opening date on this monument. Finally, both Stelæ F and 4 come together on the next hotun-ending, 9.15.0.0.0, which appears as the last date in each. These first five dates in the historic period are all recorded on one or the other of the two later monuments, and are the only hotun-endings in the entire group of 14 dates. As we have already seen, the last date recorded on Stelæ F and 4 is the same, 9.15.0.0.0, although on stylistic grounds it is necessary to conclude that Stela F was made first. If Stela F is earlier than Stela 4, then 9.14.10.0.0 was the first of these hotuns to be recorded, being on Stela F, and following this the next katun-ending, 9.15.0.0.0. Stela 4 begins with a still earlier hotun-ending, 9.8.15.0.0, whose sixth katun anniversary, however, 9.14.15.0.0 (also recorded), lies between the two hotuns on Stela F, and finally, the next hotun after 9.14.15.0.0, *i.e.*, 9.15.0.0.0, is also recorded on Stela 4. This concludes the group of hotun-endings, which, it should be remembered, are on the two *later* monuments and not the two *earlier* ones of the group.

Could the record of these two particular hotuns, 9.14.10.0.0 on Stela F and 9.14.15.0.0 on Stela 4, more than 60 years after either of them had been the current hotun-ending, be due to the desire on the part of the priests to fill an earlier gap in the sequence of the hotun endings? It will be remembered that after 9.13.15.0.0 or 9.14.0.0.0 (the date of Stela 5) no monuments appear to have been erected until 20 years later, in 9.15.0.0.0 (Stelæ A and B), and that the hotuns 9.14.5.0.0, 9.14.10.0.0 and 9.14.15.0.0 apparently were allowed to pass without corresponding markers being erected. Possibly the priests thought they could supply this deficiency more than 60 years later (*i.e.*, in 9.17.12.0.0 and 9.17.12.13.0) by recording on stelæ then in course of being made, two of these three missing hotun-endings, a naïve but apocryphal attempt to perfect their records, not without parallel in other places at other times.

Next comes a series of five dates on the earliest monument of the group, Stela C, each one of which is important in one way or another. The first,

¹ This date is not recorded, but is not only implied by the calculations, but also demanded by the stylistic criteria.

9.16.12.13.0, is very near the important date 9.16.12.5.17, being in fact only 143 days later, and only 195 days earlier than the last date on the pedestal of Stela N. More important still, however, is the fact that it is just 1 katun *earlier* than the closing dates of Stelæ F and 4. The second, 9.16.19.2.0, seems to have no connection with the first, but it is just 4 tonalamatl earlier than the third. The third, 9.17.2.0.0, has the relationship with the second just noted, but more important still, it is just a lahuntun or half katun earlier than the last date on this monument and the only date on Stela H. The fourth, 9.17.11.5.0, is exactly 1 tonalamatl earlier than the last date on this monument and the only date on Stela H. The next date, 9.17.12.0.0, is not only the last date on Stela C and probably its contemporaneous date as well, but also is the only date on Stela H. It is just exactly 1 tonalamatl *later* than the preceding date on Stela C and 1 tonalamatl *earlier* than the closing dates of Stelæ F and 4. Since it is the only date of any kind on Stela H, it is necessary to conclude that it was the contemporaneous date of the monument, but in addition to this, the writer believes, it also was the contemporaneous date of Stela C, being not only the latest in point of time on that monument, but also the last date in the inscription, *i. e.*, at the bottom of the north side.

There remain but two other dates to discuss, the closing dates of Stelæ F and 4. These are both the same, and, as already pointed out, they are just 1 katun later than the second date on Stela C. In addition to this, they are just 1 tonalamatl later than the contemporaneous date of Stela C and the only date on Stela H.

From the foregoing it is apparent that when these two pairs of monuments are arranged according to their chronological sequence, C being earlier than H and F earlier than 4, they will be found to be in their proper stylistic sequence as well, and the chronological evidence therefore agrees with Spinden's analysis of the stylistic criteria, *i. e.*, two pairs of similar monuments, and indicates the accuracy of the readings suggested, which are repeated below:

Stelæ C and H, 9.17.12. 0.0 4 Ahau 18 Muan
Stelæ F and 4, 9.17.12.13.0 4 Ahau 13 Yax

It will be noted that all four of these stelæ were dedicated on a day 4 Ahau, and since in not one of them does this day coincide with a hotun-ending, the question arises, why should this particular day have been thus specially favored. The only suggestion the writer has to offer in this connection is that 4 Ahau was the day upon which Maya chronology commenced, *i. e.*, 4 Ahau 8 Cumhu, and therefore it may have had an unusual ceremonial importance on that account.

In the above positions, Stelæ C, H, F, and 4 are practically contemporaneous with Stela 8, Altar T, and Fragment E'; indeed, these last three monuments appear to have been erected during the tonalamatl between Stelæ C and H on the one hand and F and 4 on the other, all seven having

been dedicated in the tonalamatl which contained within its span, as already pointed out, the first katun anniversary of the important date 9.16.12.5.17 6 Caban 10 Mol.

After 9.17.0.0.0, as we have already seen, a number of important works at the Acropolis of the Main Structure were brought to a close, the Eastern and Western Courts, Temples 11 and 21*a*, and Altars G₃ and Z. This must have released a number of sculptors, who next turned to the making of Stelæ C, H, F, 4, and 8, Altar T, and Fragment E'. The close relationship existing between these seven monuments has already been pointed out, Stelæ C and H being 117 and 122 days earlier respectively than Altar T, Fragment E', and Stela 8, and Stelæ F and 4 being 143 days and 138 days later respectively than Altar T, Fragment E', and Stela 8.

The prominence of the tonalamatl or sacred year is particularly noticeable in Stelæ C, H, F, and 4, and indeed in these monuments seems to have completely overshadowed the primary function of the stelæ, *i.e.*, as being hotun-markers. With the breakdown of Initial Series dating doubtless went other practices, among them that of erecting a monument at the end of every hotun to commemorate its passage. New ideas were coming into favor, and old methods were giving way, which is perhaps the best explanation for the omission of the current hotun-ending in the inscriptions of Stelæ C, H, F, and 4.

We come now to the last three monuments at Copan, the dates of which appear to be reasonably certain, Altars W, G₂, and G₁. Unfortunately these are recorded as Calendar Round dates, so there is some little uncertainty concerning them. Indeed, the most that can be claimed for the readings suggested is that they are probably correct.

ALTAR W.

Provenance: Unknown. Removed to the Peabody Museum in 1892.
Probably found somewhere at the Main Structure.
(See plate 6.)
Date: 9.18.0.0.0 11 Ahau 18 Mac¹ (?).
Text, (a) photograph: plate 24, *c*.
(b) drawing: Gordon, 1902, figure 14.

Altar W is now in the Peabody Museum (catalogue number C. 2439), whither it was brought by the First Expedition in 1892. Its provenance, other than as having been found somewhere at the Main Structure, is uncertain. The museum catalogue only describes it as having come from "Copan, Honduras," and Gordon's only reference to it, that in his monograph on the Hieroglyphic Stairway, states that it came "from Copan."²

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² See Gordon, 1902. Title to figure 14 on p. 172: "Fig. 14.—11 Ahau 18 Mac. Date on a small circular stone from Copan."

The writer has referred it to the Western Court in plate 6, although it may well have come from anywhere else at the Main Structure. This paucity of data concerning its provenance is unfortunate, since, insignificant as it is, it probably records one of the very latest dates at Copan. It is drum-shaped, being 36 cm. in diameter and 18 cm. high. There is a knotted band passing around the periphery and two glyphs on the top. (See plate 24, *c*.) Gordon reads these correctly as the Calendar Round date 11 Ahau 18 Mac. This is a very rare case indeed—the record of a date without any other glyph accompanying it—and suggests the interesting possibility that the Maya may never have recorded much else in their inscriptions besides their chronology and astronomy.

By referring to Goodman's tables, it will be found that 11 Ahau 18 Mac occurred only once in Cycle 9 as a tun-ending, in which place it was not only a hotun-ending, but a katun-ending as well, namely, 9.18.0.0.0 11 Ahau 18 Mac, which therefore is probably the Initial Series value to be supplied here. It would seem as though Altar W were very insignificant indeed to have been the only monument erected at such a large city as Copan to mark a katun-ending, particularly one only 20 years later than Katun 17, which we have seen was so brilliantly commemorated, and it is possible, therefore, that other monuments dating from this period may yet be found. One such may be Fragment X', now in the Museum of the Normal School at Tegucigalpa, which clearly records either Katun 18 or 18 katuns, *i. e.*, either being a fragment from an Initial Series or a Secondary Series. (See p. 368.)

ALTAR G₂.

Provenance:	In the Great Plaza at the Main Structure, midway between Stela F and Stela H. (See plate 6.)
Date:	9.18.5.0.0 4 Ahau 13 Ceh ¹ (?).
Text, (a) photograph:	Maudslay, 1889-1902, vol. 1, plates 53, <i>a</i> , 54, 116, 117.
(b) drawing:	<i>Ibid</i> , plates 52, <i>c</i> , 114.
References:	Bowditch, 1910, table 29. Maudslay, 1889-1902, vol. 1 of text, pp. 49, 69. Spinden, 1913, table 1.

Stephens describes Altars G₃, G₂, and G₁ as "a mass of fallen sculpture with an altar," under the name R.²

Altar G₂ is the twin, so to speak, of Altar G₃ (pp. 325, 326). It is about the same size, and presents exactly the same subject as G₃, namely, a double-headed serpent whose arching body leaves a hollow place in the lower part of the altar which runs clear through from one side to the other. Maudslay suggests that braziers of copal³ may have been placed in this hollow, so that the smoke of the incense in burning would rise over the body of the serpent.⁴ Above the hollow, and in the bend of the serpent's back on each side, there was formerly a panel of 4 glyph-blocks, or 8 in the entire text. Unfortu-

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² Stephens, 1841, vol. 1, map facing p. 133, and p. 152.




³ Copal, the resinous gum of the *Elaphrium gracile* Engler, was the universal incense used throughout the Maya area. It burns with a rather heavy black smoke and a fragrant aromatic odor.

⁴ Maudslay, 1889-1902, vol. 1 of text, p. 49.

nately, as in the case of G_3 , which has an identical glyph-presentation, one whole side is almost entirely obliterated; the remaining side however, is clear. This opens with the date 4 Ahau 13 Ceh in A_1 , B_1 , followed by 1 Ahau in A_2a . Referring to Goodman's tables, it will be found that this date occurred twice in the Great Period—at 9.15.12.5.0 and 9.18.5.0.0. Because the latter ends not only a tun of the Long Count, but also a hotun as well, it seems to be the better reading here.

There is, however, one point which may tend to cast some doubt upon the accuracy of this reading and indicate the former. This date, 4 Ahau 13 Ceh, occurs on another monument here at Copan, namely, Altar U, where it almost certainly has the earlier value 9.15.12.5.0. Neither reading develops any special connection with the day 1 Ahau in A_2a , for which no explanation can be offered.

It will appear in the discussion of G_1 following, that if this earlier reading is accepted for G_2 , the earlier reading must also be accepted for G_1 , which will involve a serious break in the stylistic sequence of these three altars. Furthermore, if the later readings for Altars G_2 and G_1 are accepted, they will be found to have marked successive hotuns in the Long Count. For this latter reason more than any other the writer accepts 9.18.5.0.0 4 Ahau 13 Ceh as the probable date of Altar G_2 , admitting at the same time, however, that the earlier reading, 9.15.12.5.0 4 Ahau 13 Ceh, is not a remote possibility.

The four glyph-blocks on the other side are almost entirely effaced. The last two, c_1 , d_1 , are probably a Calendar Round date. If  so, the day coefficient could only have been 1, 2, or 3, and  probably 1, since a day 1 Ahau is recorded on the other side  at A_9a . The month coefficient is either 6, 7, or 8. No explanation of this date can be offered.

ALTAR G_1 .

Provenance:	In the Great Plaza at the Main Structure, midway between Stela F and Stela H. (See plate 6.)
Date:	9.18.10.0.0 10 Ahau 8 Zac ¹ (?).
Text, (a) photograph:	Maudslay, 1889-1902, vol. 1, plates 53, 54, 116, 117.
(b) drawing:	<i>Ibid.</i> , plates 52, b and 114.
References:	Bowditch, 1910, table 29. Maudslay, 1889-1902, vol. 1 of text, pp. 49, 69. Spinden, 1913, table 1.

Altar G_1 is much larger than G_3 or G_2 , and, moreover, shows a somewhat different treatment, more closely resembling that of Altar O. The general outline of Altars G_1 and O is saddle-shaped, that is, with a seat or depression on top instead of an arch or hollow below. The subject in each case is a double-headed serpent, the heads at the ends rearing themselves higher than the body in the middle, thus forming the saddle-shaped depression above noted. Altar O has no inscription, but in the center of each side of G_1 there

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

is a panel of 10 glyph-blocks, or 20 for the entire text. On one side at c2 there is a large inclusion of harder volcanic rock, but the loss of space which its presence here entails was compensated for by having 6 glyph-blocks instead of 5 in the last column, D.

The text on Altar G₁ opens with the date 10 Ahau 8 Zac at A1, B1. Referring to Goodman's tables, it will be found that this date occurred in the Great Period at two places, 9.15.17.5.0 and 9.18.10.0.0. Because it ends not only a tun but also a hotun and lahuntun as well, the latter is probably the better reading of the two, although the other is entirely possible.

This whole question of the dates on G₃, G₂, and G₁ is rather perplexing, and the points for and against the two sets of readings are presented below:

Stylistically arranged, the sequence of these monuments is either G₃, G₂, and G₁ as followed here, or G₂, G₃, and G₁, that is G₁, the largest and most elaborate, being the latest in both stylistic sequences.

Chronologically considered, the sequence is either G₂, G₁, and G₃, or G₃, G₂, and G₁. This much is practically certain, that the date of G₃ is 9.17.0.0.0 13 Ahau 18 Cumhu, since we can hardly refuse to recognize 7 Ahau 18 Pop and 13 Ahau 18 Cumhu, the only 4 glyphs on G₃, as other than the two consecutive hotun-endings, 9.16.15.0.0 7 Ahau 18 Pop and 9.17.0.0.0 13 Ahau 18 Cumhu respectively.

It will be remembered that we had two sets of possibilities here, namely:

9.16.15.0.0	7 Ahau 18 Pop, and	9.19. 7.13.0	7 Ahau 18 Pop and
9.17. 0.0.0	13 Ahau 18 Cumhu	9.19.12.13.0	13 Ahau 18 Cumhu

But not only is the second in each case too late to be historically probable, but the first two end consecutive hotuns of the Long Count. These facts practically render certain the accuracy of the first set of readings for G₃. Therefore, no matter what the dates of G₂ and G₁ may be, G₃ is 9.17.0.0.0 13 Ahau 18 Cumhu. But we have just seen that on stylistic grounds G₁ could hardly have preceded G₃. Not only is G₁ larger, but it is also more elaborate. Indeed, on stylistic grounds alone, it would seem that G₁ must be the latest of the three altars of this type, since it is the most highly developed. But the date of G₃ is known to be 9.17.0.0.0 13 Ahau 18 Cumhu; therefore, since G₁ is almost certainly later, it can only have been 9.18.10.0.0 10 Ahau 8 Zac; and if G₁ is 9.18.10.0.0 10 Ahau 8 Zac, there can be little doubt but that G₂ must be 9.18.5.0.0 4 Ahau 13 Ceh and not 9.15.12.5.0 4 Ahau 13 Ceh. Moreover, this is the only arrangement supported both by the chronological and stylistic evidence; for, based on the stylistic criteria, there were two possible sequences: G₃, G₂, and G₁ or G₂, G₃, and G₁, and of these only one, G₃, G₂, and G₁, is common to both.

While it is true that definite proof is wanting, the writer believes, in view of all the evidence, chronological as well as stylistic, that Altars W, G₂, and G₁ record the hotun-endings 9.18.0.0.0 11 Ahau 18 Mac, 9.18.5.0.0 4 Ahau 13 Ceh, and 9.18.10.0.0 10 Ahau 8 Zac, respectively, and that as such they are probably the latest monuments at Copan.

FRAGMENT X'.

Provenance: Original position unknown. Now in the Museum of the Normal School at Tegucigalpa, Honduras.
 Date: 9.18.0.0.0 11 Ahau 18 Mac¹(?).
 Text, drawing: figure 51, *a*.

Fragment X' is a small block of stone 28 cm. high and 20 cm. wide, now in the Museum of the Normal School at Tegucigalpa. Its provenance is unknown, except that it came from Copan.

The single glyph-block preserved very clearly records "18 katuns" (see fig. 51, *a*). Unfortunately nothing remains, either of the glyph preceding it or of that following it, so that it is impossible to tell whether this fragment was formerly part of an Initial Series or a Secondary Series. If, for example, the next glyph to the right was formerly the uinal-sign and coefficient, then this fragment was in all probability part of an Initial Series, possibly recording the same date as Altar W, 9.18.0.0.0 11 Ahau 18 Mac. On the other hand, if the next glyph to the right was the cycle-sign and coefficient, *i.e.*, an ascending series from left to right, then this fragment was part of a Secondary Series, and the corresponding date to which it reached may have been anything. The style of the tun element is late, and it is not improbable that the reading suggested may be correct.

From its nature Fragment X' would appear to have been part of some mosaic panel like those in the doorways of Temple 11, or possibly part of a hieroglyphic step. If the latter, it almost certainly may be assigned to the Hieroglyphic Stairway of Mound 26, in which case it was not part of an Initial Series, but of a Secondary Series.²

The average height of the steps in the Hieroglyphic Stairway is 30.5 cm. as compared with 28 cm. for Fragment X', not a great difference. On the other hand, this fragment looks more like a piece of a mosaic panel than anything else, and it may possibly have come from some glyph-panel like those in the doorways of Temple 11, in which event the reading suggested would not be improbable.

There remain a few monuments which, for one reason or another, can not be assigned to their exact positions in the Long Count, though all doubtless date from the Great Period. These are: Temple 18, Stela 11, Altars F', G', N', O', T', and U', Shrine R', and Fragment Z'. Three, Stela 11, Altar O', and Temple 18, are either in or near the Eastern Court of the

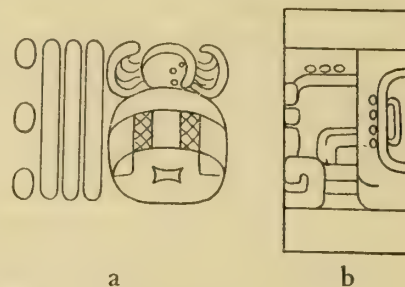


FIG. 51.—Inscriptions on: *a*, Fragment X';
b, Fragment Z'.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

² This is so because the Hieroglyphic Stairway was dedicated in 9.16.5.0.0, or at least 35 years earlier than Katun 18, and a later Initial Series than the dedicatory date never appears.

Acropolis at the Main Structure. (See plate 6.) Three others, Altars F', G', and N', are just outside the Main Structure, on the plain, to the south, southwest, and west respectively. (See plates 3 and 6.) Two, Altars T' and U', are either at Old Copan (U', Group 9) or in the immediate vicinity (T', Group 10). (See plate 3.) Shrine R' is on the hillside south of the river and southeast of the Main Structure at Group 7 (see plate 3), and Fragment Z' is from a temple at Group 4. (See plate 3.) Since the readings suggested are uncertain, they will be described in the order given above, commencing with the three in the Eastern Court.

STELA 11.

Provenance:	In the passage leading south from the Eastern Court, between Temple 16 and Mound 17 at the Acropolis, Main Structure. (See plate 6.)
Date:	9.17.5.0.0 6 Ahau 13 Kayab (?). ¹
Text, (a) photograph:	Gordon, 1896, plate 8.
(b) drawing:	Maudslay, 1889-1902, vol. I, plate 112, <i>a-c</i> .
References:	Gordon, 1896, pp. 38, 39. Maudslay, 1889-1902, vol. I of text, p. 68. Spinden, 1913, table 1.

Stela 11 is a small cylindrical column 1.08 meters high and varying from 36 cm. to 39 cm. in diameter. It was found during the course of the excavations in the passage south of the Eastern Court by the First Peabody Museum Expedition in 1892. The front and sides are covered with the representation of a human figure elaborately clothed. The back is inscribed with two columns of glyph-blocks containing 7 each or 14 for the entire text, on the basis of which arrangement it may be assigned to Class 6.

The first glyph, A1, is very clearly 6 or 7 Ahau, and the uncertainty in this text arises from the fact that the month corresponding to this day was not recorded. The next glyph, B1, bears a superficial resemblance to Mol, but it is not that month, and indeed there are no other decipherable glyphs in the inscription.

The dating of this monument is indeed a difficult task, since at best we have the record only of a specified day, which recurred at intervals of every 260 days. Indeed, even to approximate its position in the Long Count it is necessary to rely upon the stylistic criteria.

The style of Stela 11 is clearly late. This is specially true of the glyphs, which are greatly simplified and show a somewhat cursive tendency noted in the latest texts at Copan. Another indication of lateness is the presence of the glyph in A2. This sign only occurs in late texts. (See Altar Q, B2, and the Reviewing-stand in the Western Court, *plb*.)



The human figure also shows many late features, the free treatment of the face and head-dress, for example. The arrangement of the figure and glyph-panel on the block is equally significant. We have seen that the

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

former extends around the block, leaving only the back available for the inscription. This is a late development, as already noted. It was introduced first on Stela D in 9.15.5.0.0, and became increasingly popular as the Great Period progressed. It was repeated on Stela M a katun later, but omitted on the next two monuments, N and C, and finally used in the last three stelæ in the Great Plaza, F, H, and 4. Its occurrence on Stela 11, therefore, is in itself a strong indication of lateness.

Finally, the provenance of the monument, *i.e.*, in the Eastern Court, a late construction, would tend to indicate that it dates from the latter part of the city's occupation. In fact, all the lines of evidence available, the stylistic criteria as well as the provenance, indicate that Stela 11 is to be referred to the Great Period and probably to its latter part. Even this does not greatly aid us, however, in deciphering the exact date unless we postulate that this monument dates from a hotun-ending. If this were true, it can be found from Goodman's tables that there were only three hotuns in the Great Period which ended on a day 6 or 7 Ahau, namely:

9.16.15.0.0	7 Ahau 18 Pop
9.17. 5.0.0	6 Ahau 13 Kayab
10. 0. 0.0.0	7 Ahau 18 Zip

Of these the last is almost certainly too late for Copan, and of the remaining two, 9.17.5.0.0 would appear to be the better reading, since this same date is also recorded on Altar Q, which also has the same unusual glyph as A2 on Stela 11, and also because most of the dated monuments and temples in the Eastern and Western Courts may be referred to 9.17.0.0.0 or the following hotun.

ALTAR O'.

Provenance:	Found in 1915 in the Eastern Court in front of the Jaguar Stairway at the Acropolis, Main Structure. (See plate 6.)
Date:	The Great Period.
Text, (a) photograph:	plate 9, f, g, h.
(b) drawing:	figure 52.

Altar O' was found by the writer in the Eastern Court at the Acropolis, Main Structure, in front of the Jaguar Stairway, in 1915. No previous reference to it appears to have been made, and its original provenance was doubtless nearby. It is now in the southwestern corner of the court, whither some one has since carried it.

Altar O' in its present condition is 66 cm. high, 16 cm. wide, and 27 cm. deep. The front and sides are sculptured with glyphs, the back being dressed smooth, but left plain. Parts are missing both from the top and bottom, indicated by the broken edges at both ends. Possibly the central or preserved part of this altar rested on a pedestal and was surmounted by some ornament. (See fig. 52.)

There are 4 columns of 5 glyph-blocks each on the back and two columns of the same number of glyph-blocks on each of the sides, making a

total of $20+10+10=40$ glyph-blocks for the inscription. Unfortunately, none of those preserved records a date, though a few signs are recognizable, as, for example, the top glyph in the last column on the back, which is 3 katuns.

The style of the glyphs is late, though earlier than those on Stela 11. It may be that the non-calendric glyphs present contain data which will enable us to fix the position of this monument in the Long Count, but until these shall have been deciphered, exact dating is impossible, and nothing can be done further than to refer Altar O' to the Great Period.

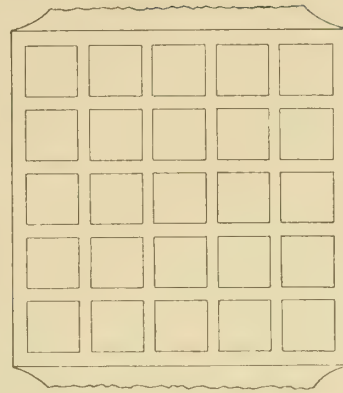


FIG. 52.—Drawing of Altar O' showing broken edges at top and bottom.

TEMPLE 18.

Provenance:	At the southeastern corner of the Acropolis, Main Structure, part having fallen into the river. (See plate 6.)
Date:	9.16.14.16.0 6 Ahau 3 Cumhu (?), or 9.17. 5. 0.0 6 Ahau 13 Kayab (?).
Text, photograph:	plate 24, <i>a</i> .
References:	Gordon, 1896, p. 11. Maudslay, 1889-1902, vol. I of text, p. 26.

No details of this temple are given either by Gordon or Maudslay, and indeed it is so badly ruined there is little that can be said about it. The façade is entirely gone (see fig. 53), although parts of the front doorway

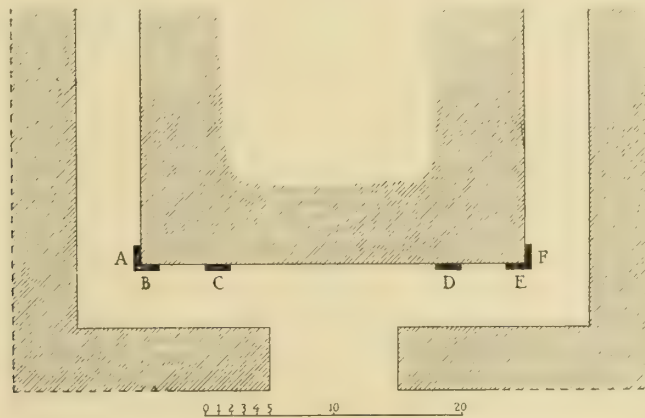


FIG. 53.—Plan of north (front) gallery of Temple 18.

and the north and east galleries may still be traced. The western gallery is almost entirely destroyed, having fallen to the bottom of the substructure.

Along the back wall of the front gallery at B, C, D, and E, figure 53, and at the ends of the adjoining walls of the east and west galleries, A and F, respectively, figure 53, are six large, handsomely sculptured glyphs, set out 5 or 6 cm. from the planes of these walls. The first to the left at A, in the east gallery, is very clearly 6 Ahau, and adjoining it around the corner in

the front or north gallery at B is 7?, the glyph to which the 7 is attached being a grotesque head, probably the same as that on Altars T' and U'. (Compare plate 24, *a*, with figure 55.) It has a long, upturned nose, filed front tooth, and fleshless lower jaw. The two first characteristics clearly recall God B, the "Long-nose" God, and it is not improbable that this deity may be represented here. The upper part of the head is the day-sign Imix. (See plate 24, *a*.) At C, figure 53, is the same glyph with the same coefficient, except that here this head is turned to the right, so that it would face the doorway.

At E, at the opposite end of the back wall of the north gallery, there is this same head, but with a coefficient of 8, and just around the corner, in the western gallery at F, ? Ahau. In order to have a symmetrical presentation it is necessary to presuppose another head like B, C, and E at D, with a coefficient of 8, viz:

A	6 Ahau	D	8 God B(?)
B	7 God B	E	8 God B
C	7 God B	F	? Ahau

Two dates have been suggested for Temple 18, neither of which may be correct. The first, 9.16.14.16.0 6 Ahau 3 Cumhu, is the same as the best reading of the starting-point of the count on the step in Temple 21*a*, 100 meters to the north on the opposite side of the same court (see plate 6), which itself is a very doubtful reading. The proximity of these two temples, coupled with the fact that both clearly record the same day, 6 Ahau, may indicate that these two dates are the same.

Altar R was found just in front of this temple, and its contemporaneous date, as we have seen, is probably 9.16.12.5.17, less than 3 years earlier than the date suggested above for Temple 18.

Another possibility is that this 6 Ahau may be 9.17.5.0.0 6 Ahau 13 Kayab, and that Temple 18 dates from the same hotun as Altar Q in the Western Court and Stela 11, which was found nearby. The inscription is so fragmentary that it is impossible to proceed farther with its decipherment, other than to affirm that it undoubtedly dates from the latter part of the Great Period. Originally the inscription would appear to have been more extensive, as a block was found in one of the galleries showing parts of several bar-and-dot coefficients.

ALTAR F'.

Provenance:	Found in the débris on the southern side of Mound 32 at the Main Structure. Now at the Peabody Museum. (See plate 6.)
Date:	9.17.4.1.11 2 Chuen 4 Pop (??).
Text, (a) photograph:	plate 24, <i>e</i> .
(b) drawing:	Gordon, 1902, figure 26.
	Gordon, 1902 <i>a</i> , figures 9 and 10.
References:	Gordon, 1902, figured, but no reference in text.
	Gordon, 1902 <i>a</i> , pp. 134-139.

Altar F' is a small, oblong, block of stone 46 cm. high, 36 cm. wide, and 33 cm. deep, now in the Peabody Museum (catalogue No. C. 88). Gordon does not give its exact provenance, but in the museum catalogue it is stated to have been found in the débris on the southern side of Mound 32, just south of the Main Structure. (See plate 6.) Around three sides extend nine parallel bands, which occupy the entire height of the altar. Each one of these has a knot in the middle, making a vertical row of 9 knots on one side. The opposite and remaining side, probably the front of the altar, is inscribed with two columns of 4 glyph-blocks each, making a total of 8 for the inscription.¹

The text opens with a Secondary Series number in A1, composed of tuns, uinals, and kins, but most unfortunately this corner is broken off, and of these three coefficients, two are missing. (See plate 24, *e*.) The tun coefficient is gone, but judging from the space which it occupied it must have been high, probably above 10 but under 16. The uinal-sign, as usual in Secondary Series, has two coefficients. The one to the left is clearly 10, and the one above, though destroyed, would appear to have been above 5 but under 11. The first half of B1 is a glyph of unknown meaning frequently found with Secondary Series as here, and B1b is the Calendar Round date 2 Chuen 4 Pop. Although the form for Chuen in B1b u. h. is somewhat irregular, this identification seems likely, since the only other day-signs possible with a month coefficient of 4, *i. e.*, Cimi, Cib, and Imix, are all very unlike the day-sign recorded. There is some little doubt about the day coefficient also. Gordon in his drawing shows this clearly as 3, but in the original the upper element is entirely broken off. Rather than assume an asymmetrical presentation here, *i. e.*, 3 dots above one ornamental element, an X, it is more likely that the effaced element at the top was another X like the one at the bottom; and that the resulting coefficient was 2 instead of 3. There is nothing in the original militating against the latter assumption, and the whole weight of Maya practice in recording bar-and-dot coefficients is against the former.² It seems probable, therefore, that the date recorded here is 2 Chuen 4 Pop, instead of 3 Chuen 4 Pop as read by Gordon.

The next question to be settled is, what was the position of this date in the Long Count? In the first place, it is extremely probable that the Secondary Series number in A1 is to be counted either to or from this date, but which? One thing alone is clear in this connection: If 2 Chuen 4 Pop is the starting-point and the uinal coefficient is 10, there is no place in Cycle 9 where the end of a tun can be reached, and furthermore, if 2 Chuen 4 Pop is the terminal date and the uinal coefficient is 10, there is no place in Cycle 9 where the end of a tun can be the starting-point. This follows because at no place in Cycle 9 is 2 Chuen 4 Pop found with a uinal coefficient of 7 or 10.

Turning to Goodman's tables, it will be found that this date occurred in Cycle 9 at the following places.

¹ Most of these glyph-blocks are quadruple, so that there are 27 glyphs in the text in all.

² The writer recalls no example of an asymmetrical disposition of the elements in a bar-and-dot numeral.

9. 1. 7.13.11	2 Chuen 4 Pop
9. 4. 0. 8.11	2 Chuen 4 Pop
9. 6.13. 3.11	2 Chuen 4 Pop
9. 9. 5.16.11	2 Chuen 4 Pop
9.11.18.11.11	2 Chuen 4 Pop
9.14.11. 6.11	2 Chuen 4 Pop
9.17. 4. 1.11	2 Chuen 4 Pop
9.19.16.14.11	2 Chuen 4 Pop

The style of Altar F' clearly places it in the Great Period, where this date could have occurred but twice. Of these two readings, 9.17.4.1.11 would seem to be the better, because 9.19.16.14.11 is too late to be historically probable, although nothing positive can be urged in favor of the former.

Gordon, in a long discussion of this inscription,¹ reaches the conclusion that Altar F' dates from 9.0.15.10.11 3 Chuen 4 Pop. This reading, however, is open to two vital objections: the day recorded is almost certainly 2 Chuen, not 3 Chuen, and the style of this altar is certainly late, and not early. He points out further that the 9 knotted hands may have some reference to the current cycle, *i.e.*, 9, which appears probable.

ALTAR G'.

Provenance:	In the field south of the Main Structure. (See plate 3.)
Date:	9.15.4.17.1 4 Imix 9 Mol (?).
Text, (a) photograph:	plate 24, <i>d</i> .
(b) drawing:	figure 54.

Altar G' lies in an open field, about half a kilometer south by southwest of the Main Structure. (See plate 3.) It is a small circular stone 46 cm. high, 71 cm. in diameter at the top, and 63 cm. in diameter at the bottom. It rests on four, short, round, fluted legs and has a band of 8 glyph-blocks encircling it near the bottom. (See plate 24, *d*, and fig. 54.)

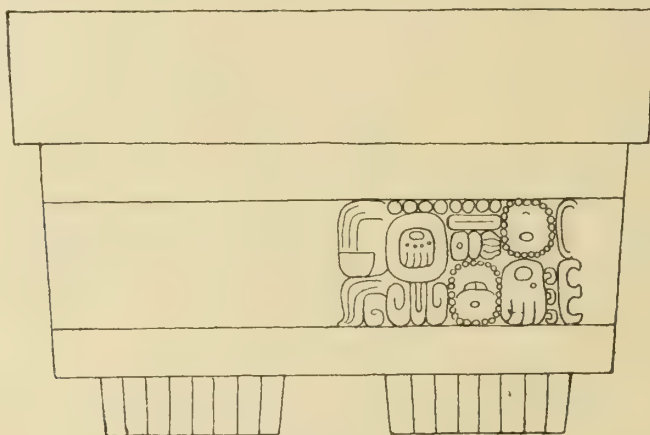


FIG. 54.—Part of inscription on Altar G'.

Fortunately the date, so far as it goes, is very clear. This is the Calendar Round date 4 Imix 9 Mol, there being a line in the bar of the month coefficient. This date occurred but twice in the Great Period, as follows: 9.15.4.17.1 4 Imix 9 Mol and 9.17.17.12.1 4 Imix 9 Mol. Of these the first seems to be

¹ Gordon, 1902a, pp. 134-139.

the better reading, as it is only 19 days earlier than Stela D in the Great Plaza. It should be noted, however, that the second is almost equally if not quite as probable.

The plain to the south and southwest of the Main Structure is filled with the remains of stone buildings. Near Altar G' were found several large human and grotesque heads, apparently parts of some façade decoration. This altar was probably associated with one of the temples in its immediate vicinity, of which there must have been several.

ALTAR N'.

Provenance:	Found in 1915, due west of Mound 7 at the Main Structure, and just outside the wall built by the Peabody Museum around the Main Structure. (See plate 6.)
Date:	The Great Period.
Text, drawing:	plate 26, <i>h</i> .

Altar N' was found in 1915, 61 meters due west of Mound 7 at the Main Structure and just outside of the wall built by the Peabody Museum. It was not far distant from Mound 49, with which it originally may have been correlated. It is a rectangular block of stone 46 cm. high and 37 cm. by 58 cm. at the bottom, and 32 cm. by 29 cm. at the top. The base is 23 cm. high, then comes a ledge cut back 1.5 cm., and then the upper half, also 23 cm. high. (See plate 26, *h*.) This offset gives a solid appearance to the altar not achievable in a simple rectangular block, and considerably enhances its artistic effect.

Only the upper half is sculptured. On the front (one of the longer sides) is a delicately executed human figure 19 cm. high and 13 cm. wide. The head is grotesque and bears some resemblance to the uinal head. The opposite side or back is plain, the surface being neatly dressed.

On each of the two shorter sides is a panel of 2 glyph-blocks or 4 for the altar. Although all are fairly clear, none appear to record a date. The first glyph, A1, has an ending prefix with a bar-and-dot 9 above the main sign, which is effaced. Could this have been Cycle 9? (See plate 26, *h*.) A2 is the head of God C, identified by Schellhas as the North Star or possibly Ursa Major. The first glyph on the opposite side, B1, is the day-sign Ahau with the same ending-prefix as in A1, but without any coefficient. The last glyph, B2, is undecipherable. Eventually, if A1 and B1 can be deciphered, it may be possible to date this altar, but at present the record is so elliptical, particularly B1, it is impossible to even hazard a guess as to where it belongs, except that from its style and execution it may be referred with certainty to the Great Period.

ALTAR T'.

Provenance:	Found in 1916, 0.5 kilometer southwest of the village on the edge of a terrace above the flood-plain of the river (Group 10). (See plate 3.)
Date:	The Great Period.
Text, drawing:	figure 55.

Altar T' was found by the writer in 1916 on the edge of the first terrace above the flood-plain of the river, 0.5 kilometer southwest of the village at Group 10. (See plate 3.) It is a small drum-shaped stone 30 cm. high and 49 cm. in diameter. The periphery is completely covered with four glyphs, one in each quadrant, and all alike. Above the glyph-band is a narrow plain border; the top and bottom are also plain. The glyphs show abundant traces of red paint. The glyph thus repeated four times appears to be the same grotesque head as that in the north gallery of Temple 18, probably the head of God B. (Compare figure 55 with plate 24, *a*.) We note the same upturned nose, filed front teeth, ear ornament, fleshless lower jaw, and Imix-sign at the top of the head, the latter somewhat differently treated, however. The only differences in fact are that here the coefficient is 9, as compared with 7 and 8 in Temple 18, and here the head has a superfix wanting in the heads in Temple 18. This superfix, the writer believes, is the same as the one in the great-cycle glyphs on Stela 10 at Tikal, Stela N here at Copan, and on the tablet from the Temple of the Inscriptions at Palenque. Elsewhere he has suggested that this superfix increases the cycle-sign in a ratio of 20, *i. e.*, $20 \times 144,000 = 2,880,000$,¹ and if this is true elsewhere, it should have the same value here; but the meaning or value of the main element here is unknown. The coefficient 9 recalls the cycle coefficient of the historic period, and if we could identify this grotesque head as a katun-sign, this superfix of 20 would raise it to the value of a cycle, and the 9 would then indicate the current cycle of the historic period. We could then explain the whole glyph as a novel synonym for Cycle 9. Bowditch figures a number of head-variant katun-signs (1910, plate 12), all of which show the prominent beak-like nose and a few the filed upper front tooth. None, however, shows the fleshless lower jaw.

It does not appear advisable to press this interpretation farther, although it is interesting to note that it gives a plausible explanation for the coefficient 9. The date is of course undeterminable, except that on stylistic grounds it may be referred to the Great Period.

ALTAR U'.

Provenance:	Found in 1916, in the patio of the house at the southeastern corner of the village plaza. (Group 9). (See plate 3 and figure 22, <i>n</i> .)
Date:	The Great Period.

Altar U' was found by the writer in 1916 in the patio of the house at the southeastern corner of the village plaza, in which position it is near the base of the pyramid on the summit of which Altar S was found and from the

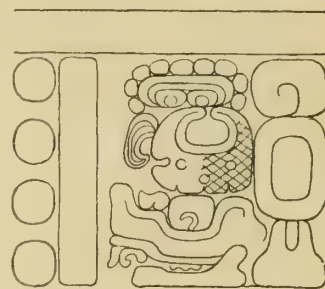


FIG. 55.—Part of inscription on Altar T'.

¹ Morley, 1915, pp. 120, 121.

interior of which the fragment of Stela 21 was recovered. (See plate 3 and fig. 22, *k*, *l*, and *n*.) It is a small drum-shaped stone like Altar T', 29 cm. high and 48 cm. in diameter. The top and bottom are plain, the periphery being inscribed with three glyphs. These are very badly weathered, but from what is left it is evident that each had a coefficient of 9, and that each was probably the same grotesque head as on Altar T', whatever that may be. The similarity of these two altars in size, shape, and treatment is very close, and both doubtless may be referred to the Great Period.

SHRINE R'.

Provenance:	On the hillside south of the Copan River, facing the Main Structure and slightly east of south from it. (Group 7, see plate 3.)
Date:	The Great Period (?).
Text, photograph:	plate 28, <i>d</i> .

Almost due south of the Main Structure, on the side of the hill which rises just beyond the river, there is an outcropping of the native rock in a ledge, perhaps 60 or 70 meters above the bed of the stream. Advantage has been taken of this stone *in situ*, to carve from it an elaborate shrine overlooking the valley, the central figure of which is a large and realistic toad. (See plate 28, *d*.)

No previous reference to this shrine appears to have been made, and the writer only heard of it on his third visit to Copan in 1915. It can hardly have escaped the indefatigable labors of Gordon or Maudslay, however, although neither mentions it in his writings. From one end to the other it is 6 meters long, and at the widest point about 3 meters wide. The height from the base of the altar at the front to the top of the last platform at the back is about 1.5 meters.

Facing the shrine, *i. e.*, with one's back to the valley, there is an altar on the right, slightly in advance of the other parts. This is the shape of a truncated cone, being perfectly flat on top. It is 41 cm. high at the back, though somewhat higher in front, owing to the slope of the hillside, 2 meters in diameter at the base, and 91 cm. in diameter at the top. Its position with reference to the other figures, as well as its shape, probably indicates its use as an altar for burning incense at the shrine. It is asymmetrically placed with reference to the long axis of the shrine, being at one side.

Just behind the altar is a large, rough rock only partially dressed. The back and right sides show plain dressed surfaces merging into the steps or seats carved out of the ledge to the right of the shrine. The front and left sides of this rock are rough. Opposed to this on the other side of the shrine at the front, and in a sense balancing it, there is another large unfinished rock. The center of the front is occupied by the large toad figured in plate 28, *d*, the most conspicuous feature of all. This is 1.07 meters long, 61 cm. high, and 61 cm. wide, and squats on a bench of dressed stone, lips parted, tongue protruding, eyes half closed, and throat enormously swollen. The ledge of

rock from which it is carved comes up much higher against the left side of the toad (facing it) than the right, and here, on the sharply sloping front, a column of three glyph-blocks is sculptured.

These are the only glyphs anywhere about the shrine, and it is indeed unfortunate, therefore, that all three should be effaced, since with the loss of the inscription in such an unusual monument as this approximate dating on stylistic grounds becomes impossible. It is even hazardous to assume this shrine dates from the Great Period at all, since, judging from the stylistic criteria present, it is well within range of the sculptors of the Middle Period. To the right of the toad and slightly in advance is a lower grotesque figure, and another of the same kind behind to the right and also lower. Next comes a pair of rough unsculptured blocks balancing each other; and finally, at the top of the last bench, the highest point of the shrine, and some 20 meters behind, are several mounds.

The toad is easily the central figure, and a not inappropriate name for this whole cluster of sculptured rocks is that suggested here, "the Shrine of the Toad." Its function, except as an obvious place of sacrifice, as indicated by the altar in front, can only be conjectured. Possibly the toad may have had some connection with the idea of rain, and this shrine may have been the place where sacrifices to the rain deity were made.

The treatment of the head of the toad, even to adventitious details, is just like that of the head-variant of the uinal-sign. (Note the three dots in the ear in plate 28, *d*, and compare with the uinal-signs in plate 26, *d*, *v*, and plate 27, *eb*.) Can this possibly indicate that this shrine was consecrated to the deity presiding over the uinal, namely, a toad-like god? Making due allowance for Maya psychological processes, the latter would appear to be the most attractive hypothesis now available.

Here as the uinals waxed and waned the ancient Maya priests may have made the sacrifices appropriate to each of their 20-day periods; at least from its unique character and prominent position we can not doubt but that the Shrine of the Toad played a not unimportant part in the religious life of the ancient city.

FRAGMENT Z'.

Provenance:	At Group 4, 2.5 kilometers up the valley from the Main Structure. (See plate 3.)
Date:	The Great Period.
Text, drawing:	figure 51, <i>b</i> .

Fragment Z' is a small piece of a glyph mosaic 32 cm. high and 17 cm. wide from the principal temple at Group 4, 2.5 kilometers up the valley, northeast of the Main Structure. (See plate 3.)

The first bench of hills above the valley floor at this point has been leveled off and a number of stone structures built facing the valley. Judging from the number of sculptured fragments lying around the principal mound, it formerly must have been an important temple.

Fragment Z' would appear to have been part of a hieroglyphic cornice, or at least part of a horizontal architectural member. (Note the plain bands both above and below.) Part of one glyph only appears, which looks something like the head of God C. Excavation here would doubtless bring to light the remaining fragments of this text, which, however, may be assigned to the Great Period on the basis of the stylistic criteria.

This bench of hills on the north side of the valley, from the Quebrada Seca, Group 4, westward to Group 9, a distance 4.5 kilometers, has been artificially leveled off from end to end and covered with stone buildings. Practically no excavations have been made along this bench, and it offers one of the most promising parts of the city for future investigation, especially Groups 4 and 6, which, judging from the number of sculptured fragments found lying loose on the surface, must have been sections of considerable importance.

Before closing this analysis of the Copan inscriptions, it is necessary to describe one last text from this site, namely, an engraved peccary skull dating from the Early Period, the description of which has been deferred to this point in order that it should not interrupt the continuous presentation of the monumental sequence.

This skull was found, with another similarly engraved, by the First Peabody Museum Expedition under Saville in 1892 in Tomb 1 just south of the Main Structure between Mounds 34 and 36. (See plate 1.) It lay on the floor of the tomb by the side of the other skull, and was associated with other objects of bone, jade beads and the like, and several skeletons. Spinden gives a drawing of it (1913, fig. 210) and an excellent description of the design (*ibid.*, p. 151); the part of the inscription presenting the date shown in figure 56, *a*, however, was re-drawn by the writer directly from the original now in the Peabody Museum (catalogue number C. 201).

The panel of four glyphs shown here is in the center of the top of the skull, and is the most conspicuous part of the entire design. It is flanked by two seated human figures facing the panel, and elsewhere on the top there are three running peccary, a jaguar, a monkey, and other human figures and glyphs, the whole beautifully executed in incised lines, except for a few of the glyphs on the sides, which are in low relief, made by cutting the background somewhat deeper.

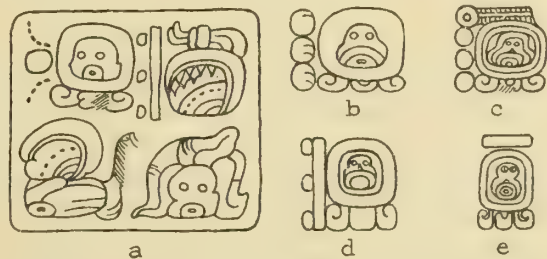


FIG. 56.—*a*, Part of inscription on peccary skull from Tomb 1. Early forms of day-sign Ahau: *b*, Altar Y; *c*, Stela 25; *d*, Stela 15; *e*, Stela 16.

The text opens with the day 1 Ahau in A1 and then follows in B1 a sign which the writer long mistook for 8 Chen, Yax, Zac, or Ceh, followed by the end of a tun in A2. But it will be found from Goodman's tables that no tun of Cycle 9 ended on the day 1 Ahau 8 Chen, Yax, Zac, or Ceh, and for a long time this date baffled all efforts looking toward its decipherment. Indeed, it was not until the writer's discovery in 1918 that the "winged Cauac" sign is a variant of the tun-glyph that decipherment was made possible, and it then became apparent that B1, which had previously been mistaken for 8 Chen, Yax, Zac, or Ceh was in reality Tun 8, which in October 1919 led to the reading given below.

This text reads: "1 Ahau (A1), Tun 8 (B1), End of a tun (A2), Ahau (?) (B2)"; and referring to Goodman's tables once more, it will be found that the only Tun 8 in Cycle 9 which ended on the day 1 Ahau was 9.7.8.0.0 1 Ahau 3 Ceh, the month being suppressed in the present text, as was not infrequently the case.

9.7.8.0.0 is a fairly early date, but happily a highly unusual feature in this text authenticates the correctness of this reading on stylistic grounds also. It will be noted that the Ahau-sign, both in A1 and B2 of figure 56, *a*, shows an unusual notch on either side of the face (the inner line in A1 and the central element in B2). This is a very unusual characteristic, and so far as the writer is aware, is only found in four other texts known: Altar Y, Stela 25, Stela 15, and Stela 16, all at Copan, *b*, *c*, *d*, and *e*, figure 56, respectively, all of which are earlier than 9.7.8.0.0, viz.:

Stela 25	9.2.10. 0.0
Stela 15	9.4.10. 0.0
Altar Y	9.7. 1. 2.6
Stela 16	9.7. 2.12.0

Thus on stylistic grounds (its resemblance to other known dated inscriptions), the early character of this text is amply substantiated, and is in perfect agreement with the early date which it records.

Slight and apparently adventitious details like this are frequently of more importance in establishing general contemporaneity on stylistic grounds between two texts than resemblances between the larger features, another case illustrating this point being the protuberances at the corners of the day-signs on Stela 3 at Tikal and on Stela 24 at Copan, only 3 years apart in date, a feature found in no other inscriptions known.

Another interesting feature in connection with this text is that it presents the earliest example of the use of the "winged-Cauac" variant of the tun-sign yet discovered. It shows, moreover, that tun-ending dating was in vogue as early as the Early Period of the Old Empire, and as the writer has shown elsewhere,¹ that it continued in practice down to the close of the New Empire, a range of more than a thousand years.

Smaller objects such as this peccary skull were doubtless executed whenever fancy dictated, although even here a tun-ending was chosen for the contemporaneous date, but the larger monuments, particularly during

¹ Morley, 1919, p. 274, and Appendix II.

the Early and Middle Periods, were erected only at the hotun-endings. This date, although it is not on a monument, has been inserted in its proper chronological position between Stela 18 and Stela 7 under the texts from the Early Period in Appendix IX.

This concludes the presentation of the inscriptions of Copan, but before proceeding to summarize these data, it appears advisable to describe here three other monuments found at sites which undoubtedly drew their artistic inspiration from Copan, if indeed they were not colonized directly therefrom—

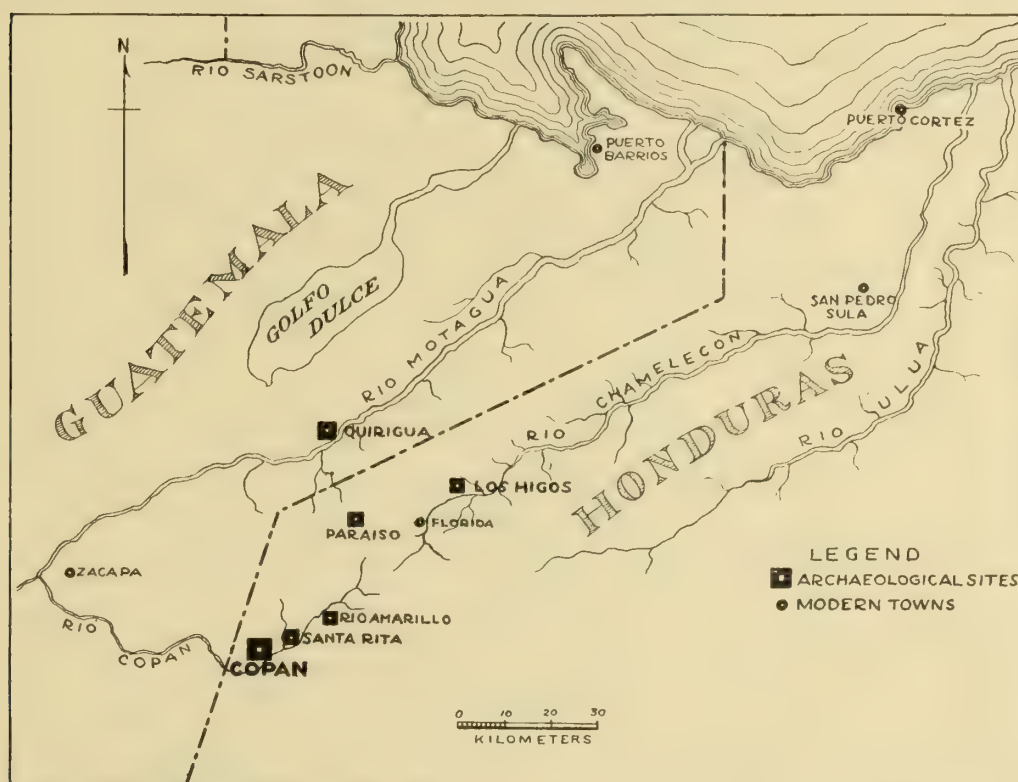


FIG. 57.—Map showing location of Copan and the principal cities along the southeastern Maya frontier.

Rio Amarillo on the east bank of the Copan River, 30 kilometers northeast of Copan, and Los Higos, across the divide in the Chamelecon Valley, 80 kilometers northeast of Copan. (See figure 57 for the location of these sites.)

The first was discovered by the Carnegie Institution Central American Expedition of 1917 and the second was "relocated" at the same time, although the original discovery of the latter would appear to have been made by Squier as early as 1850.¹ The map in figure 57 shows clearly the chain of sites northeast of Copan, Santa Rita, Rio Amarillo, Paraiso,² Los Higos,

¹ See Morley, 1917c, pp. 287-289; 1918a, p. 276, note; and Squier, 1883, pp. 468-480.

² Paraiso is located in a small valley on the divide between the Motagua and Copan Rivers, somewhat nearer Quirigua than Copan. (See fig. 57.) The writer visited this site in 1914, but although typical Maya sculptures—heads, decorative elements, etc.—were found, unfortunately no inscriptions were recovered. The site is fairly large and excavations here would doubtless bring to light additional material. The heads examined showed rather closer affinities with the art of Copan than with that of Quirigua.

and Quirigua, all of which drew their artistic inspiration from the great southern metropolis, and all of which were probably colonized therefrom. The last four probably date from the close of the Middle Period or the beginning of the Great Period and are but another expression of that great expansion which began at Copan in 9.11.0.0.0 and continued in ever-widening waves for the next century and a quarter.

ALTARS 1 AND 2 AT RIO AMARILLO.

Provenance: On a terrace at the foot of the hills on the east side of the Copan River, 30 kilometers northeast of Copan.
(See figs. 57 and 58.)
Date: The Great Period.
Text, drawing: figures 59 and 60.
Reference: Morley, 1917c, pp. 287, 288.

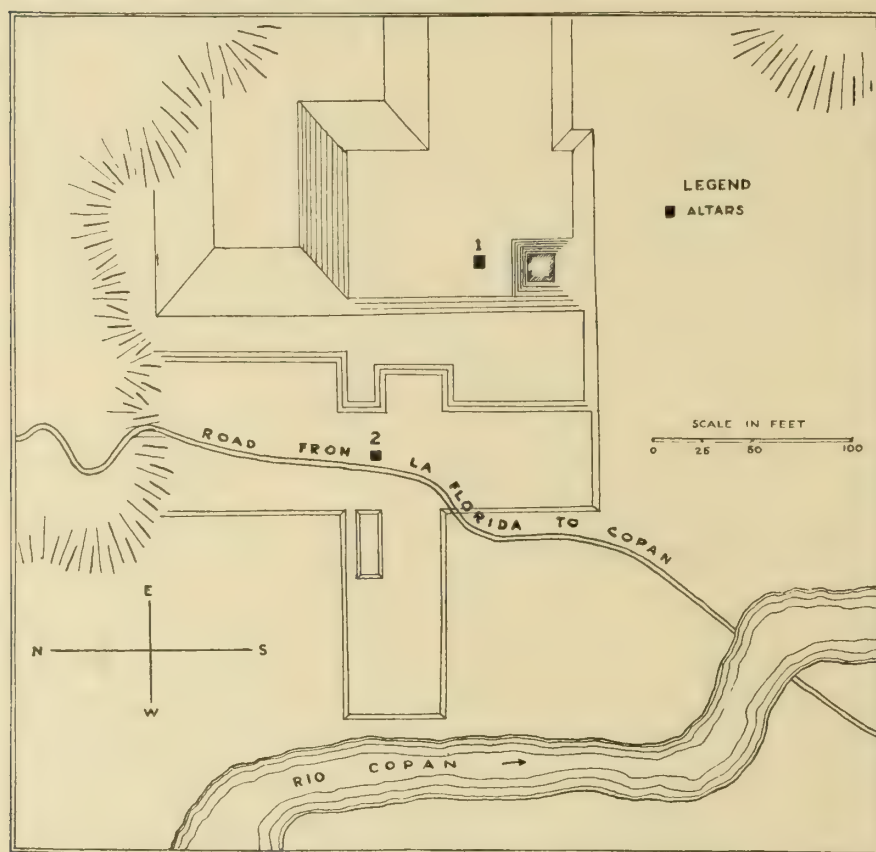


FIG. 58.—Plan of the ruins of Rio Amarillo.

Rio Amarillo is located 30 kilometers northeast of Copan, on the east bank of the Copan River, at the foot of the hills on the east side of the valley. The road from La Florida to Copan, after emerging from the hills and just before crossing to the west bank of the river (see figs. 57 and 58), passes along the edge of the terrace where both Altars 1 and 2 lie.

Altar 1 is approximately square, being 86 cm. long, 84 cm. wide, and 30 cm. high. The top and bottom are plain, each of the four sides having 3

glyph-blocks, or 12 for the entire text. (See fig. 59.) Clear as these are on the east, south, and west faces, every sign of which is perfectly legible, no one appears to contain data by means of which the position of this altar can be fixed in the Long Count; and it is necessary to conclude that the date must have been recorded in the first two glyph-blocks on the north side, A, B, now unfortunately effaced. (See fig. 59, *a*.) Many individual glyphs,

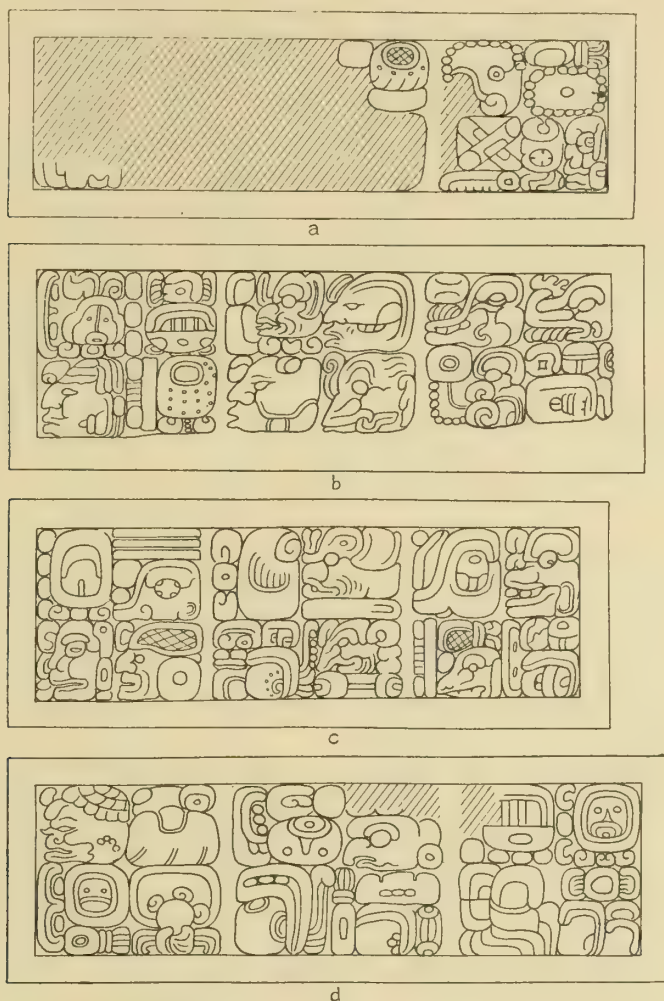


FIG. 59.—Inscription on four sides of Altar 1 at Rio Amarillo.

however, are recognizable. Thus, for example, on the west side (fig. 59, *b*) *da* u. h. contains the day-sign Ahau; *db* u. h. is 3 katuns and *db* l. h. looks like 7 Ix (?); *ea* l. h. looks like a head-variant for the day-sign Kan, and *fa* l. h. is the head of God C.

On the south side the first glyph, *ga* u. h. is 4 Cib and *ha* l. h. is the winged-Cauac variant of the tun-sign, and on the east side at *ja* l. h. the day-sign Ahau appears, and again at *ka* u. h. (here inverted), and again the day 1 Ahau in *lb* u. h. There were 2 or 3 tuns recorded in *la* u. h., but unfortunately the coefficient here is partially effaced. In spite of the fact

that it is possible to decipher several of the above glyphs, owing to the loss of the first two glyph-blocks, A and B, this inscription can not be dated other than as falling in the Great Period.

Altar 2 is slightly smaller than Altar 1 and is again approximately square, being 67 cm. long, 63 cm. wide, and 35 cm. high. Only half of it was found, and only one of the two faces on this piece is sufficiently preserved to make out the inscription (fig. 60). The first sign, A, is Ahau, but without any coefficient, the two remaining glyphs being undecipherable. The carving is of the same character as that on Altar 1, and this altar also may safely be referred to the Great Period on stylistic grounds.

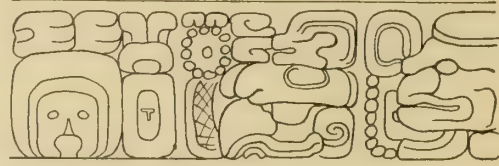


FIG. 60.—Part of inscription on Altar 2 at Rio Amarillo.

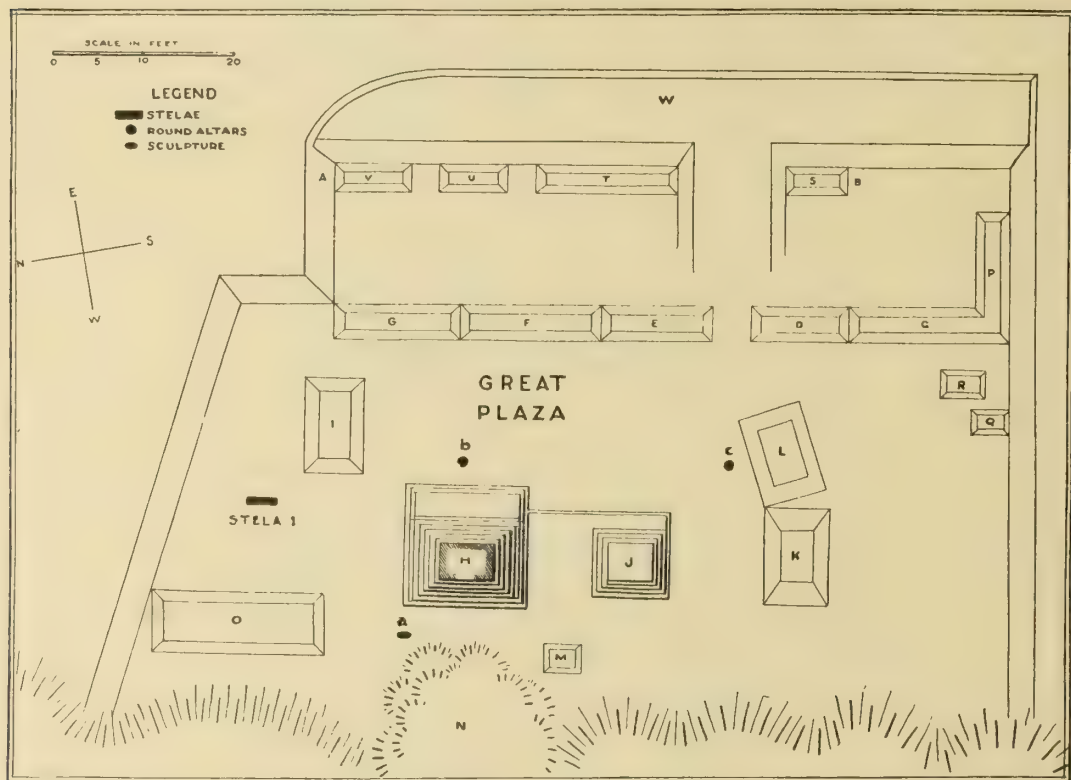


FIG. 61.—Plan of the ruins of Los Higos.

STELA I AT LOS HIGOS.¹

Provenance:

On the west side of the Chamelecon River, 80 kilometers northeast of Copan and 30 kilometers northeast of La Florida. (See figs. 57 and 61).

Date:

9.17.10.0.0 12 Ahau 8 Pax.¹

Text, drawing:

figure 62.

References:

Morley, 1917c, pp. 288, 289.

Morley, 1918a, p. 276, note.

Squier, 1883, pp. 468-480.

¹ For other monuments recording this same hotun-ending, see Appendix VIII.

This site is located on the west side of the Chamelecon River, just below the Hacienda of Los Higos, from which it takes its name, not more than 200 meters back from the river-bank. The city was built just where the ground begins to rise from the flood-plain, and its long axis runs north and south. Behind the city to the west is a rocky hill and cliff which probably supplied the building material.

Approaching from the east or river side over a low platform (W, fig. 61),¹ one climbs a terrace 3 meters high, along the eastern edge of which there is a range of low mounds, S, T, U, and V. Behind these and some 7 or 8 meters higher is a second range of fallen buildings, C, D, E, F, and G. North of G this third terrace turns to the west and defines the north end of the site.

Behind this second range of buildings is the Great Plaza, dominated by the principal temple, H, which surmounts a pyramid 10 or 12 meters high. This had stairways on all four sides, but the temple itself faced toward the river, *i.e.*, west. In the court on the north side of this temple lies Stela 1, the only inscription yet found at this site. (See fig. 62.) A torso and head (in two pieces) and two small plain altars were found at *a*, *b*, and *c*, respectively, figure 61.

Interest here centers in the stela, which, although badly broken and part missing, is a fine example of Maya art during the Great Period, from the zenith of which it dates.

The present height of the several fragments recovered is 1.6 meters, and probably another quarter to half a meter is still missing. It is 43 cm. wide and 36 cm. thick. The front is sculptured with a human figure which very closely resembles that on Stela B at Copan, both having the same kind of turban head-dress. (See fig. 62, *a* and *c*.) The back and sides are inscribed with glyphs, on the basis of which arrangement it is to be assigned to Class 4 of the Copan stelæ.

The inscription, which is beautifully clear, opens with an Initial Series introducing glyph at A1-B2 (fig. 62, *b*), followed by the corresponding Initial Series at A3-B5, B9 (*i*). This records the date 9.17.10.7.0 9 Ahau (3 Tzec) as follows.

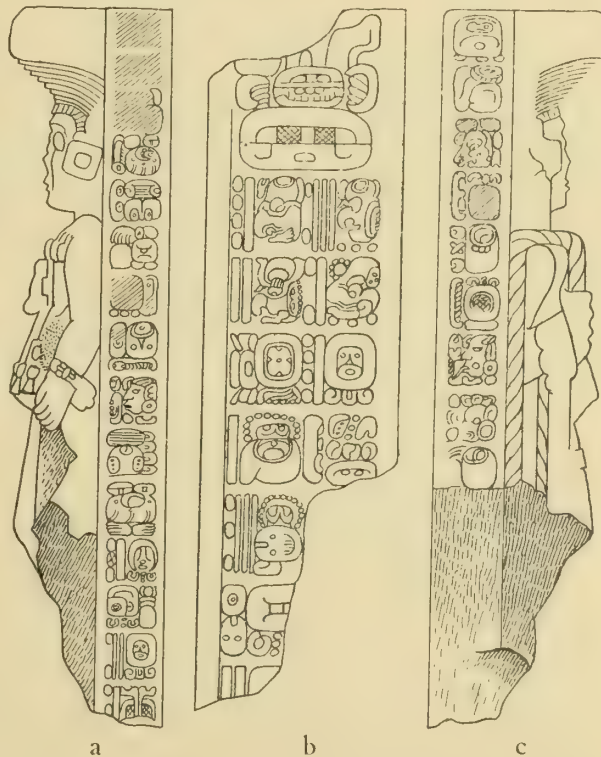


FIG. 62.—Inscription on Stela 1 at Los Higos: *a*, *c*, sides; *b*, back.

¹ The map of Los Higos shown in figure 61 was made by Mr. John Held, Jr.

A1-B2	Initial Series introducing glyph
A3	9 cycles
B3	17 katuns
A4	10 tuns
B4	7 uinals
A5	0 kins
B5	9 Ahau
B9	[3 Tzec]

Although the month-sign itself is effaced, the presence of the glyphs of the Supplementary Series in A6-A9, the last, Glyph A, appearing in A9, renders it practically certain that 3 Tzec was recorded in B9.¹ Continuing the inspection of this text, there are no decipherable glyphs on the left side facing the stela (fig. 62, *c*), although c5 may be the moon-sign with a coefficient of 2, which the writer has shown elsewhere may stand for 40 days.²

The first three glyph-blocks on the right side, D1-D3, figure 62, *a*, are effaced; the fourth, D4, looks like Imix with a Ben-Ik superfix, and the fifth, D5, is half of the Venus-sign. In D8 is the day-sign Ahau inverted, and in D11 Imix again with the Ben-Ik superfix. The last four glyphs, D12-D15, are exceedingly important, since they record a Secondary Series of 7 uinals in D12, which if counted backward from the Initial Series will reach the date 12 Ahau 8 Pax in D14, D15, a hotun-ending, and therefore, in all probability, the contemporaneous date of this stela:

A1-B5, A9	9.17.10.7.0	9 Ahau 3 Tzec
D12	7.0	backward
D14, D15	9.17.10.0.0	12 Ahau 8 Pax

The decipherment of this text has already been given in connection with the discussion of Altar W' (p. 333), where other examples of this overlapping of the current hotun-ending by a few uinals, always less than 18, are given. It was shown there, and may be repeated here, that such overlapping probably in no way interfered with the character of such monuments as hotun-markers, and Stela 1 at Los Higos therefore may be accepted as dating from 9.17.10.0.0, being about 2 years earlier than the last group of stelæ in the Great Plaza at Copan, C, H, F, and 4, and of exactly the same date as Zoö-morph B at Quirigua.

The relief on this monument is beautifully executed, particularly the glyphs, which show a delicacy of treatment and a refinement of detail scarcely surpassed by the best work at Copan, with which its date of 9.17.10.0.0, that is at the height of the Great Period agrees appropriately.³

¹ Attention should be called to the unusual form of Glyph X at A8, in this Supplementary Series. This variant is only known in three other texts in the Corpus Inscriptionum Mayarum, namely, Stela 20 here at Copan (9.1.10.0.0) (?); the tablet in the Temple of the Cross at Palenque (9.13.0.0.0(?)); and Stela E at Quirigua (9.17.0.0.0), the last only 10 years earlier than the contemporaneous date of this stela.

² That is, 2×20 . See Morley, 1916, pp. 384-386.

³ The writer was enabled to relocate this site, which was discovered by Squier between 60 and 70 years ago and subsequently forgotten, by a fortunate coincidence which brought together in Guatemala City, in May 1917, Professor Marshall Saville, Mr. S. K. Lothrop, and Mr. Basil Booth. Information then received from these three gentlemen enabled him to find this site a few weeks later.

The beginning of the Great Period at Copan was characterized by a remarkable outburst of sculptural activity in the Great Plaza, where the first of the Great Period monuments, Stelæ A and B, were erected, followed by Stela D at the end of the next hotun. These monuments ushered in an era of elaboration in stone carving, the like of which had never been seen before in the city. Delicate details of relief were actually freed from the plinth, as in the undercutting of the feather-work in the head-dress of Stela B. Indeed, the sculptors of the day were at the Maya esthetic zenith. Skillful control of technical processes, developed through several centuries of continuous experience, coupled with lofty esthetic ideals, the result of increasingly beautiful art productions, had finally brought the Maya to their Golden Age, the accrued benefits of which they were now enjoying.

Somewhat earlier than this, a tremendous project had been inaugurated, no less than the construction of the lofty pyramid known as Mound 26, and of the magnificent Hieroglyphic Stairway ascending its western side and the imposing temple on its summit. It is even possible that this construction may have been started as early as 9.13.17.18.9 in the Middle Period; but what is certain, however, is that its completion did not take place until 20 years after the erection of Stela D in 9.15.5.0.0, and further, that after the dedication of Stela D probably all sculptors and masons in the city were transferred to the more important public works then in course of construction at the southern end of the Main Structure, namely, the Acropolis and the associated pyramids and temples.

The Hieroglyphic Stairway in particular, with its many glyphs and elaborate decorative elements, human figures of heroic size, birds, serpents, etc., must have required a large number of skilled artisans for its execution; at all events, after Stela D there are no surely dated monuments until after the completion of the Hieroglyphic Stairway, Temple 26, and the dedication of Stela M at its base, in 9.16.5.0.0.

The next hotun, 9.16.10.0.0, was marked by Stela N, and then came the period of maximum architectural, sculptural, and indeed cultural efflorescence. For the next 20 years there followed a series of brilliant artistic achievements, intricately carved altars, gorgeously ornate stelæ, and magnificently embellished temples; the city was now rounded into its final form as found to-day, and became, in truth, the esthetic center of the Maya world.

Coming to a more detailed consideration of the monuments, we note at the outset a considerable extension in the use of the hieroglyphic inscriptions. In addition to stelæ and altars, the latter greatly diversified in type, we now find texts inscribed upon hieroglyphic steps and stairways, both exterior and interior, door-jambs, and possibly even cornices.¹ This extension of texts beyond the narrower field of stelæ and altars is of itself an indication of "lateness," and such inscriptions on this ground alone are to be

¹ Although no examples of hieroglyphic cornices have yet been reported at Copan, with the possible exception of Fragment Z', pp. 378, 379, which is doubtful, one was found by the writer at the neighboring city of Quirigua in 1912 (see Morley, 1913, pp. 347, 352); and it is highly probable that examples of it may yet be recovered at Copan.

assigned to the Great Period. For the purposes of this investigation we may classify the texts of the Great Period according to the media upon which they are presented into four general groups: (1) stelæ, (2) altars, (3) steps, and (4) jambs. The 11 stelæ of the Great Period may be divided into four classes, according to the arrangement of their designs, as follows:

2.¹ Stelæ having inscriptions on two alternate faces, the two remaining faces being plain (Stela 8).

4.² Stelæ having inscriptions on three faces, the fourth being carved with the representation of the human figure (Stelæ A and B).³

5. Stelæ having inscriptions on two alternate faces, the remaining two being carved with representations of the human figure (Stelæ C and N).

6. Stelæ having inscriptions on the back only, the front and sides being carved with representations of a single human figure with increased ornamentation (Stelæ D, M, H,⁴ F, 4, and 11).

The 5 earlier stelæ of the Great Period, A, B, D, M, and N, all have Initial Series and all record hotun-endings. Indeed, all but one, A, have their respective hotun-endings recorded by their respective Initial Series. Of the 6 in the later group, however, 8, C, H, F, 4, and 11, probably none were erected to commemorate hotun-endings, and only one in fact has an Initial Series, *i.e.*, Stela 4. Here is a sharp break in practice as contrasted with the stelæ of the Early and Middle Periods and the beginning of the Great Period. The earlier stelæ of the group are regular, the later irregular, the break coming after Stela N, in 9.16.10.0.0.

We have seen that the lahuntun from 9.16.10.0.0 to 9.17.0.0.0 was characterized by a tremendous outburst of architectural as well as sculptural activity, and during the busy days which followed the erection of Stela N, Initial Series dating passed out of fashion at Copan. Thus all the final stelæ and temples have their contemporaneous dates recorded as Period Endings or simply Calendar Round dates, or not at all. We may therefore formulate the following generalization concerning the stelæ of the Great Period, namely:

During the latter half of the Great Period, the custom of erecting stelæ at the expiration of the hotuns fell into disuse, and with it also went the custom of recording Initial Series on any kind of monuments.⁵

The altars of the Great Period are as complex as the stelæ. Of those associated with stelæ, moreover, none present inscriptions. These are chiefly of the double-headed-monster type and are exceedingly complex. In some cases, as the altars of Stelæ M and F, for example, they are not even monolithic, being built up of several sculptured pieces fitted together.

¹ Class 1 (see p. 125) is not represented in the Great Period.

² Class 3 (see p. 125) is not represented in the Great Period.

³ Stela B shows a transition between Classes 4 and 5, in that its back is covered with a large grotesque mask instead of a human figure of heroic size.

⁴ Stela H shows a transition between Classes 5 and 6, having a grotesque mask on its back in addition to the glyph-panel.

⁵ Only two exceptions, Stela 4 and Fragment E', need be made.

The 22¹ independent altars described in this chapter as having inscriptions may be divided into a number of types. The rectangular altars of the Early and Middle Periods, although represented by a few simple examples (S and V) grow larger and more ornate. Grotesque or death's heads fill first one end (R and Z) and later both ends (B' and C'). Still later, as the altars grow larger, more complicated designs are introduced, such as figures seated on glyphs and animal forms (D', W', L, U, Q, and T). A special development of the rectangular altar is the shaft or square column, of which O', F', and N' are examples. The round altars of the Early and Middle Periods become less frequent and very much smaller (W, T', and U'), reaching the form of a table with legs as their latest development (G').

The most elaborate altars of all, however, are the double-headed serpents or monsters with glyph-panels in the coils of their bodies (G₃, G₂, and G₁). The dates of G₂ and G₁ indicate that they are probably the latest inscriptions at Copan. The same tendency toward flamboyancy noted in the stelæ of the period is also found in the decoration of the altars, and as the end drew near made itself increasingly felt.

Only one of these 22 altars, the earliest, Altar S, records an Initial Series, though a number have hotun-endings as their contemporaneous dates *i.e.*, Z, G₃, Q, W', W, G₂, and G₁. This may, indeed probably does, indicate the passing of the function of marking the hotun-endings from the stelæ to the altars. While none of the later stelæ are hotun-markers, most of the later altars are, a distinct reversal of the general practice in earlier times.²

But the onward sweep of intellectual and esthetic development was driving the Copan sculptor even further afield than the mere diversification of earlier and familiar forms. The hieroglyphic step came into fashion, both as an exterior and an interior element of architectural decoration.³ Three examples of the former have been found at Copan, namely, that on Mound 2, the Hieroglyphic Stairway of Mound 26, and the Reviewing-stand in the Western Court, and three of the latter, the interior steps of Temples 11, 22, and 21a.

¹ Altar S	Altar V	Altar Q	Altar G ₂	Altar G'
L	R	W'	G ₁	N'
B'	U	T	O'	T'
C'	Z	W	F'	U'
D'	G ₃			

² Earlier examples of this later practice may be the altar of Stela 1 and the West Altar of Stela 5, commemorating the katun-ending 9.12.0.0.0, and Altars H' and I', commemorating the next katun-ending, 9.13.0.0.0.

³ The earliest use of the hieroglyphic step or stairway is probably at Palenque, in House C of the Palace group. (See plate 1.) The Initial Series on this stairway is 9.8.9.13.0, but this is brought forward into Katun 11, 12, or 13 by a Secondary Series. The Initial Series on the hieroglyphic stairway at Naranjo commences with an early date, 9.10.10.0.0, but Secondary Series present in this inscription may bring this date forward, perhaps to Katun 18 or 19.

Maler's glowing account of a hieroglyphic stairway on Structure 5 at Yaxchilan hardly appears justifiable: "This hieroglyphic stairway of structure 5 of Yaxchilan is the most magnificent one I have ever seen" (Maler, 1903, p. 122). In 1914 the writer could hardly satisfy himself that these steps had ever been inscribed with glyphs at all.

The next use of the hieroglyphic step would appear to have been here at Copan in the Hieroglyphic Stairway of Mound 26. In 9.16.0.0.0 we find it at Seibal; and the latest occurrence is at Quirigua, in Structure 1, where the date 9.19.0.0.0 is recorded, as a Period Ending.

The custom of inscribing both the risers and treads of steps (see the stairway of House C of the Palace Group at Palenque, Maudslay, 1889-1902, vol. IV, plate 23) never seems to have come into general use.

Not content with this ornate feature of decoration, in the broad current of flamboyancy now in full swing, door-jambs were next subjected to hieroglyphic treatment (Temples 26, 11, and 18), and possibly also exterior cornices (Fragment Z' at Group 4). But at last the end was at hand. This costly process of intellectual exhaustion, leading so surely to decadence and ultimate futility, was stopped at its most brilliant moment probably by that same catastrophe which overwhelmed all the cities of the Old Empire about 10.2.0.0.0, but which appeared at Copan three-quarters of a century earlier.

About the middle of Katun 16, coincident indeed with the important date 9.16.12.5.17 6 Caban 10 Mol, the mastery of technical processes became so complete that contemporary esthetic ideals were released from all practical limitations of material or treatment, and at once soared to flamboyant heights; and during the closing half century of the city's history (9.16.10.0.0 to 9.19.0.0.0) this tendency carried sculpture into a variety of new media and led eventually to a condition which was only saved from decline by the abandonment of the region and the migration of its inhabitants elsewhere.

CHAPTER V.

CONCLUSIONS.

GENERAL COMPARISONS.

The inscriptions of Copan are more numerous than those of any other Maya site, or indeed of any other three combined, constituting possibly as high as 40 per cent of the *Corpus Inscriptionum Mayarum*, and in their chronologic range covering 335 years, or the greater part of the Old Empire. These two factors—the large amount of material available for study and the long period covered by the dated monuments—thus make Copan the best fitted of all the Maya cities at which to investigate the chronology of the Old Empire.

In the important field of the Initial Series alone, for example, as will be seen from the following table, Copan stands preeminent, having about one third of all the Initial Series known—59¹ out of 177—and as many as those of her three nearest competitors in this respect combined, namely, Piedras Negras, Quirigua, and Naranjo:

Copan.....	59	Uaxactun.....	7	Quen Santo.....	2	Chichen Itza....	1
Piedras Negras..	25	Tikal.....	6	Ócosingo.....	1	Holactun.....	1
Quirigua.....	17	La Honradez....	5	El Pabellón....	1	Tulum.....	1
Naranjo.....	17	Itsimte.....	3	El Cayo.....	1	Leyden Plate...	1
Yaxchilan.....	13	Ixxun.....	2	Yaxha.....	1	Tuxtla Statuette.	1
Palenque.....	9	Altar de Sac....	2	Los Higos.....	1	Total.....	177

All the features noticeable in the inscriptions of the other cities, moreover, are found at Copan, and some of them, indeed, may have been inaugurated here. Take, for example, the custom of erecting the stelæ at the ends of even periods of the Long Count, instead of at odd times, a practice which became the controlling factor in the erection of monuments throughout the Maya area, and persisted for more than thirteen centuries.

It will be seen in a later section, page 396, that the three earliest Initial Series known, those on the Tuxtla Statuette, the Leyden Plate, and Stela 9 at Uaxactun, do not conform to this practice, but that, on the contrary, they record dates which do not stand at the ends, even of tuns or uinals of the Long Count.

The first *certain* example of this practice is on Stela 24 at Copan, in 9.2.10.0.0, although, in all probability, Stela 20 at the same site records the next previous lahuntun-ending, 9.1.10.0.0. The earliest known date at Tikal, Copan's only great contemporary at this time, 9.2.13.0.0 on Stela 3,

¹This number, moreover, does not include those Initial Series on the Hieroglyphic Stairway that were destroyed, of which there must have been at least 10.

does not conform to this practice; and although it is possible earlier hotun-endings may yet be found there,¹ the custom does not appear to have been followed so closely as at Copan.

This practice, with varying modifications, continued in force down to the close of the New Empire in Yucatan, and is mentioned by several of the early Spanish and native writers.² It was indeed one of the oldest of all Maya institutions, and, so far as the stelæ are concerned, it was the most important factor in determining the dates of their erection.

Another feature of Maya chronology, possibly inaugurated at Copan, was the gradual abandonment of Initial Series dating and the coincidental increase of Period Ending dating during the last half of the Great Period. Of the cities of Classes I and II given on page 441, with the exception of Nakum, where Initial Series have not been found at all, and of Palenque, which may have been abandoned before this time, Copan was the first to discard this cumbersome but extremely accurate method of dating, the last Initial Series there being carved in 9.17.12.13.0 (Stela 4) as compared with 9.18.3.1.5 at Yaxchilan (small altar near Stela 1), 9.18.5.0.0 at Piedras Negras (Stela 12), 9.18.10.0.0 at Naranjo (Stelæ 8, 12, and 28), 9.19.0.0.0 at Quirigua (Structure 1), and 10.2.0.0.0 at Tikal (Stela 11).

A glance at the fourth column in Appendix IX, which gives the kinds of dates on the different monuments at Copan, *i.e.*, whether Initial Series, Period Ending, or Calendar Round, this condition appears clearly. During the Early and Middle Periods, Initial Series are the almost invariable rule; indeed, in the Middle Period there is not a single stela without one; but after 9.17.12.13.0 (Stela 4) they stop at Copan, the closing hotun-endings, 9.18.0.0.0, 9.18.5.0.0, and 9.18.10.0.0 being marked by Period Ending dates on altars instead.

The Initial Series method of dating required eight glyphs to express any single date of the Maya Era, and was correspondingly costly of space and effort. The Secondary Series was probably developed very early to escape from such a tedious process when more than one date had to be recorded on the same monument, and as early as 9.4.10.0.0 (Altar Q') Period Ending dating, as applied to lahuntuns, was in use at Copan, and as early as 9.7.8.0.0 as applied to any tun (inscribed peccary skull from Tomb 1).

By the middle of the Great Period this method of dating was beginning to supersede the Initial Series, in some cities altogether, as for example at

¹ There are two stelæ at Tikal, Nos. 8 and 9, which the writer believes he may possibly have deciphered correctly as 9.0.10.0.0 and 9.2.0.0.0 respectively. On the west side of Stela 8 (see Maler, 1911, plate 19, 1), A6 is an ending-sign in which the hand element is very conspicuous, and following this in A7 appears to be the day 7 Ahau. Assuming this is a katun or lahuntun-ending, by no means certain, however, the only two positions where this day could have occurred in the Early Period are at 9.0.10.0.0 7 Ahau 3 Yax and 9.7.0.0.0 7 Ahau 3 Kankin, and since this latter date is too late on stylistic grounds to be possible, the former may be the date of this monument. The date suggested for Stela 9 seems more certain. The west side of this stela (see *ibid.*, plate 20, 1) opens with a hand ending-sign at A1; in A2 there appears to be either 4 or 2 katuns, and in A3 the day 4 Ahau. The only katun in the Early Period ending on a day 4 Ahau was 9.2.0.0.0 4 Ahau 13 Uo, and therefore, in spite of the fact that the katun coefficient in A2 looks more like 4 than 2, the latter would appear to be the better reading, and 9.2.0.0.0, the probable date of this stela. These two readings are so doubtful, however, that they have been disregarded in the comparisons and conclusions which follow.

² See Appendix VII.

Seibal and Nakum, where the earliest dates are 9.16.0.0.0 and 9.17.0.0.0 respectively, and at neither of which is there a single Initial Series known; and by the end of the Old Empire the Initial Series had disappeared everywhere except at Tikal (Stela 11).

In the New Empire, barring the three Initial Series at Chichen Itza (Temple of the Initial Series), Holactun (Temple of the Initial Series), and Tulum (Stela 1), Initial Series dating had disappeared entirely, to be replaced by Period Ending dating and especially by tun-ending dating.

The Carnegie Institution Central American Expedition of 1918 established this latter fact from its investigations in Yucatan, and further, that it was the unusual "winged-Cauac" variant of the tun-sign, which was used in these late New Empire tun-ending dates;¹ and very recently the writer has discovered this same variant on an inscribed peccary skull from Tomb 1 at Copan (see page 380), mentioned above, which proves that use of this sign in this connection extended back to the Early Period of the Old Empire, or that it was in use for more than a thousand years.

The development of the art of stone-carving among the Maya may best be studied at Copan in all its stages, save only the very beginnings. As already noted in Chapter II (see pages 54, 76), and to be described further in a later section, the earliest style of glyph delineation is found most extensively at Tikal. This is characterized by

1. Very low, flat relief.
2. Irregular, non-rectangular outlines of the individual glyph-blocks.
3. General absence of specialized elements to denote the different signs.

These early characteristics are best exemplified in the Tuxtla Statuette and the Leyden Plate, but omitting both from consideration on the ground that they are smaller antiquities and not large monolithic monuments, the same characteristics are to be found on the earliest monuments, as, for example, Stela 9 at Uaxactun, and Stelæ 4, 7, 8, 9, and 13 at Tikal, and Stela 20 at Copan. Indeed, the outlines of the glyphs on Stela 9 at Uaxactun and Stelæ 8 and 9 at Tikal are so irregular as forcibly to suggest the carving of the Leyden Plate, where this characteristic is so pronounced.

It is suggested in a later section that the origin of the Maya hieroglyphic writing, or even its transfer from an earlier medium such as wood to stone, need not be looked for at Copan, where the scarcity of inscriptions (indeed only one, Stela 20) which present this most reliable of all the criteria of antiquity, is probably to be interpreted as indicating that the Maya graphic system was developed elsewhere.

But except for these very earliest stages of the hieroglyphic writing on stone, Copan is the best place at which its evolution may be traced, because of the greater abundance of material here than anywhere else.

The rigid rectangular outlines of the glyph-blocks with corners only slightly rounded seems to have been developed first at Copan (Stela 24), as

¹ Morley, 1918a, pp. 272-274.

well as the lavish wealth of detail, double-lining, cross-hatching, and the ornamentation of numerical elements such as the bar and dot, with interior decorations.

Gradually, as the Old Empire wore on, these features became more simplified. The bar-and-dot elements lose their interior decoration and become plain, extensive double-lining, cross-hatching, and ornate details disappear, and the whole treatment becomes freer and simpler. Along with these developments went an increasing depth of relief. In the earliest texts the carving is very flat and low, but later it begins to stand out from the body of the monument, the background being cut back farther and farther until in the last group of stelæ in the Great Plaza it is from 10 to 12 cm. deep.

A consistent development is also seen at Copan in the arrangement of the design in the stela type of monument, of which there are 36. While this does not follow a strictly chronologic order in the monumental sequence as a whole, the several "schools" or classes of monuments clearly were of successive origin, as the following table shows:

Period.	Date.	Class 1 (2).	Class 2 (4).	Class 3 (9).	Class 4 (11).	Class 5 (4).	Class 6 (6).
Early.....	9. 1. 10. 0.0(?)			Stela 20.			
		Stela 22.					
	9. 2. 10. 0.0...	Stela 25.	Stela 24.				
	9. 4. 10. 0.0...			Stela 15.			
			Stela 16.				
	9. 6. 0. 0.0(?)		Stela 17.				
	9. 6. 10. 0.0...			Stela 9.			
				Stela 21.			
	9. 7. 0. 0.0(?)				Stela 18.		
	9. 9. 0. 0.0...				Stela 7.		
Middle....	9. 9. 5. 0.0...				Stela E.		
	9. 9. 10. 0.0...				Stela P.		
	9. 11. 0. 0.0...			Stelæ 12, 10, 19, 13.	Stelæ 2, 23.	Stela 3.	
	9. 11. 15. 0.0...				Stela 1.		
	9. 12. 5. 0.0...				Stela I.		
	9. 12. 10. 0.0...				Stela 6.		
Great.....	9. 13. 10. 0.0...			Stela J.			
	9. 14. 0. 0.0...					Stela 5.	
	9. 15. 0. 0.0...				Stelæ A, B.		
	9. 15. 5. 0.0...						Stela D.
	9. 16. 5. 0.0...						Stela M.
	9. 16. 10. 0.0...					Stela N.	
	9. 17. 5. 0.0(?)						Stela 11.
	9. 17. 12. 0.0...					Stela C.	Stela H.
	9. 17. 12. 6.2...		Stela 8.				
	9. 17. 12. 13.0...						Stelæ F, 4.

The simplest arrangement possible is where only one face is sculptured, the remaining three faces being plain but dressed (Class 1), of which there are only 2 examples. The next is that where two alternate faces are sculptured, the remaining two being plain but dressed (Class 2). This arrangement was introduced as early as 9.2.10.0.0, and 4 examples of it have been found.

Possibly as early as 9.1.10.0.0, and certainly not later than 9.4.10.0.0, the all-glyphic stela was introduced, *i. e.*, inscriptions on all four faces (Class 3), which was destined to endure for more than two centuries. This class is represented by 9 monuments.

The first representation of the human figure on stelæ was possibly as early as 9.7.0.0.0 and certainly not later than 9.9.0.0.0, the back and sides being devoted to the inscriptions (Class 4). This class persisted for about 160 years, disappearing at the beginning of the Great Period. It has 11 examples.

Stelæ having human figures sculptured on two faces, the remaining two faces being inscribed with glyphs (Class 5), first appear in 9.11.0.0.0, and lasted for about 125 years. This class, however, is limited to 4 examples.

Early in the Great Period, the apparel of the human figure became so elaborate that the glyph-panel was crowded around on to the back of the stela, the sides being given over to the sweeping plumes of the head-dress or other details of the clothing (Class 6). This is the latest class of stela at Copan and lasted until the end, *i. e.*, for about 45 years. It has 6 examples.

The chronologic sequence of these several classes is very satisfactory and is only broken in two places, Stela 20, the earliest stela, being in Class 3 instead of Class 1, the simplest arrangement, and Stela 8, a late stela being in an early class, *i. e.*, a late return to an earlier arrangement, which had gone out of fashion more than two centuries before the date of its erection; but aside from these two exceptions the several classes follow each other in a consistent chronologic order.

The same applies to the altar type of monument, although in this type the chronologic sequence of the individual monuments has not been so rigidly adhered to. On the basis of shape, they may be divided into the following classes:

1. Anthropomorphic altars, of which only 2 examples are known, the very crude examples under the foundations of Stelæ 5 and 4, which may not be altars at all. (See fig. 67, *a* and *b*.)

2. Rectangular altars, 27 examples: (*a*) the earliest group being banded, J', K', L', M', P', Q', X, Y, A', F', and the altar of Stela 6; (*b*) the middle group being without decoration: K, H', I', and V; (*c*) the late group being decorated with other and more complex designs: L, Q, S, and T with seated human or animal figures, B', C', and R with death-heads, D' and T with toads sprawled across their tops, U and Z with grotesque heads, W' with the double-headed monster, and N' with a human figure.

3. Round altars, 12 examples: (*a*) a plain undecorated group: the altars of Stelæ E, 19, 23, 5 (2), and 1, and Altars T' and U'; (*b*) a banded group, the altar of Stela I and Altars 14,¹ W, and G'.

4. Irregular-shaped altars, such as Altars G₁, G₂, G₃, and O, and all other altars not included in one or other of the above classes.

Omitting Class 1 as doubtful, the earliest type of altar at Copan is the rectangular altar, Class 2. At first this is decorated with an arrangement

¹ Altars 14 and O have no inscription, for which reason neither has been described in Chapters II-IV. The former probably may be assigned to the Middle Period and the latter surely to the Great Period on stylistic grounds.

of intersecting bands, but later these disappear, and during the Middle Period and early in the Great Period the altars of this class are plain. Still later the designs become more elaborate, consisting of seated human and animal figures, death-heads, grotesque heads, toads, double-headed monsters, and even the human figure. Class 2 altars are the commonest type of altar at Copan.

The round altar (Class 3) is first found at the close of the Early Period in 9.9.5.0.0 and lasted down to 9.18.0.0.0, having its greatest development in the Middle Period.

The irregular-shaped altar (Class 4) is a development of the Great Period, 9.17.0.0.0, and persisted down to the end, 9.18.10.0.0.

The above classification of the altars at Copan, while not so satisfactory as that of the stelæ, shows nevertheless considerable evidence of the chronologic order of the classes, the rectangular altars appearing first in the Early Period, the round altars appearing next at the end of the Early Period, reaching their greatest development in the Middle Period, and the irregular-shaped altars appearing last in the Great Period, a consistent development conforming with the increasing complexity of sculptural art as the Old Empire advanced.

In addition to the two foregoing types of monuments, stelæ, and altars, the inscriptions at Copan are presented upon steps, both interior and exterior, stairways, wall-panels, both interior and exterior, and possibly even cornices, but the last-mentioned medium, with the exception of the Hieroglyphic Stairway, is a late development, not appearing until the Great Period, at which time Maya art was at its zenith and the Maya sculptors were literally reaching out in all directions for new fields in which to express their esthetic feelings.

PROBABLE FUNCTION OF THE MAYA MONUMENTS.

From this study of the Copan inscriptions, it appears possible to indicate, in a general way at least, the probable function of the Maya monuments. At first, and during the period before Copan was founded, the monuments would appear to have been erected to commemorate specific events, such as actual historical happenings or current astronomical phenomena, examples of which are the Tuxtla Statuette, the Leyden Plate, and Stela 9 at Uaxactun, dating from 8.6.2.4.17, 8.14.3.1.12, and 8.14.10.13.15 respectively.

Very early, however, possibly shortly after the beginning of Cycle 9, if the writer's reading of 9.0.10.0.0 for Stela 8 at Tikal is correct, and certainly by 9.1.10.0.0 or 9.2.10.0.0, when the first stela was erected at Copan, this custom changed, and thereafter, instead of erecting monuments to commemorate such events, which in the very nature of the case had to be *after* the events had taken place, the practice was introduced of erecting the stelæ *on* the very days the events took place, namely, at the expiration of successive divisions of the Long Count.

A very obvious and natural reason for this change is suggested by the Maya method of counting time, *i. e.*, in terms of elapsed units, which kept the priests continually looking forward to a date which would close the *current period*, not backward to a date that had already passed. Their conception of time was such that they were always planning ahead, waiting for a future date which, when it arrived, closed a current time-period for them. Instead of erecting monuments to inaugurate new time periods, therefore, they erected them to commemorate the passage of elapsed ones. It was not the first day of the New Year which was of ceremonial importance to them as it is to us, but the *last* day of the Old Year. When a time period was finished and its corresponding monument erected, the priests were done with it, and were already looking forward to and preparing for the next period-marker. Any other procedure, such as erecting monuments *after* the occurrence of the events they were to commemorate, must have been more or less upsetting to Maya psychology and contrary to their general conception of time. And thus, possibly even to obviate some such a feeling as this, there grew up the practice of selecting, *in advance* of the dates of actual dedication, the dates upon which the monuments were to be erected. This procedure had the very practical advantage of giving the priests ample opportunity to prepare for the important occasions which these period-endings were—a preparation, indeed, which must have required a great deal of time.

First the block of stone had to be quarried and from it the stela roughly shaped. Next it had to be transported, sometimes for a distance of several kilometers, to the site where it was to be erected, and there set up in previously prepared foundations.¹ The transporting of blocks of stone weighing sometimes as high as 50 tons (Stela E, Quirigua), was of itself no small undertaking, and must have taxed the resourcefulness of the rulers not a little. The method probably followed was to use logs as rollers, which could be had in all sizes, of excellent hardwoods, and in unlimited quantities in the forests nearby, and to drag the blocks over these. The forests also provided an abundance of natural ropes, lianas, hanging vines, and the like, and with these simple expedients and plenty of labor the monoliths were eventually moved from the quarries to the cities and erected in their appointed places.

But this was only half the undertaking. Before a monument could be put into formal use, that is, dedicated, it had to be sculptured, and such are the intricacies of the inscriptions and other designs that it is absolutely necessary to assume that the sculptors who executed them had working-drawings of the designs constantly before their eyes.

The inscriptions, as we have seen, contain many fairly complicated calculations which had to be worked out in advance of the dates they dealt with, and probably were written down on paper or skin or wood to serve as

¹ These foundations, as noted more than once in the preceding chapters, are sometimes of an elaborate nature, cruciform subterranean chambers built of stone, over which the stelæ were set up, their bases held in sockets formed by surrounding slabs. Such constructions, made of cut stone, had to be prepared in advance, and demanded coördinated activities.

working-drawings for the sculptors, whose business it was to transfer these data and designs to the monuments themselves.

All these labors consumed much time, and it thus became necessary to select, *in advance* of the time of actual dedication, the exact date upon which the ceremony itself was to be celebrated, *i. e.*, the date upon which the monument was to be formally put into use, dedicated; in short, its contemporaneous date. And so the writer believes the ends, first of the katuns next of the lahuntuns, and finally of the hotuns, were chosen for this purpose.

That the katun-endings were chosen first rests upon the purely hypothetical ground that the katun would appear to be the best fitted period of the Maya chronological system available for this purpose. The tun was too short; it would have made the dates for the erection of stelæ come around too frequently. The katun, the next higher period in their system of numeration, however, came to an end only once every 20 years, and, in the very beginning at least, this would have been often enough for the struggling young cities to have undertaken such an ambitious project.

On the other hand, the archæological evidence at Copan seems to indicate that the half-katuns, the lahuntuns, were the periods at first selected for this purpose. The three earliest surely deciphered monuments at Copan, Stelæ 24, 15, and 9, all record lahuntun-endings, 9.2.10.0.0, 9.4.10.0.0, and 9.6.10.0.0 respectively, and the earliest on stylistic grounds, Stela 20, probably does also, 9.1.10.0.0. In fact, the earliest surely deciphered katun-ending does not occur until 9.9.0.0.0, or 128 years after the first lahuntun-ending, unless the reading suggested for Stela 9 at Tikal, 9.2.0.0.0, be accepted as correct. Nevertheless, the writer is inclined to believe that the katun-endings were first used for this purpose, and that at first it was the custom to erect monuments only at the end of every 20-year period, and not until later, when the Maya had grown more powerful, *i. e.*, after they had reached Copan for example, were the 10-year periods also similarly commemorated.

Thus, on the evidence furnished by Stelæ 20, 24, 15, and 9 above, it appears probable that by the time the Maya founded Copan they were able to erect stelæ at 10-year intervals, in which case the stelæ commemorating the earlier katun-endings, 9.2.0.0.0, 9.3.0.0.0, 9.4.0.0.0, and 9.5.0.0.0 either still lie buried somewhere in the valley or they have been destroyed, or even more probable, all the early katun-endings may not have been thus marked, and stelæ recording some of these dates may never have been erected.

The earliest certain first or third hotun-marker known is Stela 25 at Piedras Negras in 9.8.15.0.0, ten years earlier than the earliest now known at Copan, *i. e.*, Stela E in 9.9.5.0.0; but from this time onward the practice of marking the expiration of the five-year periods became the general rule and persisted down almost to the end of the Old Empire, except at the smaller cities, where sometimes the lahuntun-endings were used instead. (See Appendix VII for further discussion of this practice.)

It was stated in Chapter I, page 46, that the record of the Initial, Supplementary, and Secondary Series and Period Ending and Calendar

Round dates fills about half of the average Maya text, but in some inscriptions, the proportion will run much higher even than this. Thus, for example, on Altar W (see page 365), there are only two glyphs, one recording the day and the other the month of the Calendar Round date 11 Ahau 18 Mac; in other words, this text is 100 per cent deciphered. Or again, on a round altar near Stela 1 at Yaxchilan there are only eight glyphs, the first seven of which record the Initial Series 9.18.3.1.5 11 Chicchan (8 Kankin), the month being suppressed. Here only the last glyph is of unknown meaning, or, in other words, this text is 87.5 per cent deciphered. Such cases, however, are rare, and considered as a whole the Maya inscriptions may be said to be not more than 50 per cent deciphered. The above texts have been cited here only to illustrate the great importance which the Maya attached to the element of time, and possibly as tending to indicate that time in its different phases *may even have been the chief content of their inscriptions*.

The above counts except the Supplementary Series deal with the fixing of specific dates in Maya chronology. We will examine some of these further.

It was stated in the beginning of this section that the earliest Initial Series known do not record the ends of even periods of the Long Count, but that by the time the Maya had reached Copan this practice had undergone a change; and from this time on, the monuments, in the very great majority of cases, were erected at the ends of such periods. A further study of the six earliest surely deciphered monuments at Copan, Stela 24, 15, 9, 7, E, and P, shows that five of them have the period-endings they were erected to commemorate recorded as their corresponding Initial Series.

But in the case of Stela E, for the first time at Copan at least, although there is an earlier example at Piedras Negras (Stela 25), we find a slightly different condition. On Stela E the Initial Series is neither a hotun-ending nor the contemporaneous date of the monument, but an irregular date prior thereto, and the contemporaneous date, which is a hotun-ending, is recorded by a Secondary Series later on in the text. This new departure from the older practice became very popular elsewhere in the Old Empire and is only slightly less frequent at Copan, where it appears on the following monuments: Stela E, 19, 10 (?), 1, I, 5, A, the west altar of Stela 5, the altar of Stela 1, Altar H', and Altar I'.

The following examples from Copan, Naranjo, Piedras Negras, and Quirigua will illustrate its use:

COPAN, STELA I.	NARANJO, STELA 24.	PIEDRAS NEGRAS, STELA 3.	QUIRIGUA, STELA F.
9.12.3.14.0 Initial Series	9.12.10. 5.12 Initial Series	9.12. 2. 0.16 Initial Series	9.14.13. 4.17 Initial Series
1. 4.0	5. 7.15	12.10. 0	13. 9. 9
9.12.5. 0.0 Period Ending	9.12.15.13. 7	9.12.14.10.16	9.15. 6.14. 6
and contemporaneous date	11. 8. 1	1. 1.11.10	9.14.13. 4.17 repeated
	9.13. 7. 3. 8	9.13.16. 4. 6	1.16.13. 3
	2.14.12	3. 8.15	9.16.10. 0. 0 second Initial
	9.13.10. 0. 0 Period Ending and contemporaneous date	9.13.19.13. 1	Series and contemporaneous date
		4.19	
		9.14. 0. 0. 0 second Initial Series and contemporaneous date	

In the first example above, the inscription starts with the Initial Series, 9.12.3.14.0, which a single Secondary Series number brings forward to the current hotun-ending, 9.12.5.0.0, the contemporaneous date of the monument. This is the customary, although not the invariable, practice at Copan, where there is usually not more than one intermediate date between the Initial Series date and the contemporaneous date.

The second example begins with the Initial Series, 9.12.10.5.12, which three Secondary Series numbers, 5.7.15, 11.8.1, and 2.14.12, reaching two intermediate dates, bring forward to the contemporaneous date, the lahuntun-ending 9.13.10.0.0, nearly a katun later.

The third example begins with the Initial Series 9.12.2.0.16, which four Secondary Series, 12.10.0, 1.1.11.10, 3.8.15, and 4.19 bring forward to the contemporaneous date, the katun-ending 9.14.0.0.0. On the front of this monument this is recorded as a Period Ending date, but on the side it is repeated as an Initial Series.

The fourth example above begins with an Initial Series, 9.14.13.4.17, which one Secondary Series, 13.9.9, brings forward to an important intermediate date, and which another, 1.16.13.3, also proceeding from the Initial Series date direct, brings down to the contemporaneous date, the lahuntun-ending 9.16.10.0.0, also repeated as an Initial Series on one of the sides.

Analyzing these data, we find in every case that the opening date is not at the end of any particular period of the Long Count, but is a date which was apparently determined by some historical event or astronomical phenomenon. This odd date is brought forward in every case, however, by one or more Secondary Series numbers to the particular hotun-ending which each of the above monuments was erected to commemorate.

Let us examine the case of Stela 3 at Piedras Negras somewhat further. The previous hotun-ending at this city, 9.13.15.0.0, was commemorated by the erection of Stela 1, and the following hotun-ending, 9.14.5.0.0, by the erection of Stela 5. That is, it seems fair to assume Stela 3 must have been quarried, transported, erected, and sculptured between 9.13.15.0.0, the previous hotun-ending, and its own contemporaneous date, 9.14.0.0.0, five years later. But on the other hand, the first two dates on it, 9.12.2.0.6 and 9.12.14.10.16, are approximately 38 years and 26 years earlier than its contemporaneous date, and thus lie without the hotun which it was erected to commemorate, *i. e.*, the hotun ending in 9.14.0.0.0. The same condition also obtains in regard to the first two dates on Stela F at Quirigua and the first two on Stela 24 at Naranjo, both pairs lying without the spans of the hotuns these monuments were respectively erected to commemorate. The above stelæ, moreover, are no exception to the general rule, and it will be seen that *the contemporaneous dates* are quite as frequently recorded by Period Ending or Calendar Round dates, particularly in the Middle and Great Periods, as by Initial Series, and finally that the Initial Series frequently *precede* the corresponding contemporaneous dates by several years or decades, and in a few instances even by many centuries.

There remains to be considered the Supplementary Series, a more detailed description of which will be found in Appendix VI. First of all, it may be accepted as proved beyond all reasonable doubt that the Supplementary Series is a lunar count, and that it never occurs without an accompanying Initial Series. The principal data set forth in this count may be summarized as follows:

1. Glyph A declares the kind of month, *i. e.* whether composed of 29 or 30 days, in which the accompanying Initial Series date falls.
2. Glyph C probably declares the position of this month in a group composed of 5 or 6 such months, that is, whether it was the first, second, third, fourth, fifth, or sixth division of such a group; and the length of this larger lunar period, formed by grouping together 5 or 6 such months, seems to have depended in some as yet undetermined way upon the eclipse phenomenon, certainly of the sun, possibly of the moon, and possibly even of both. (See Appendix VI.)
3. Glyphs D and E in some way further amplify the data set forth in Glyph C.
4. Glyph X declares still further data, the nature of which still remains indeterminate.

The three remaining glyphs of the Supplementary Series, B, F, and G, are constant non-numerical signs, probably having some generalized meaning such as "here ends the diurnal count" and "here begins or ends the lunar count," and in no way change the meanings of the different Supplementary Series in which they occur. In this latter respect they probably play a much less important rôle than the Initial Series introducing glyphs do in the meaning of the Initial Series, for in the latter glyph the variable elements change according to some unknown law in the different Initial Series, while in the Supplementary Series, Glyphs B, F, and G, except for minor and probably unessential stylistic differences, always remain the same. It should be noted, moreover, that these lunar and eclipse data are given only for Initial Series dates, and that except for those very rare cases, eight in number,¹ where two Initial Series are recorded on the same monument, only one Supplementary Series appears on each monument.

In summing up all the foregoing evidence as to the nature and probable function of the Maya stelæ, it appears possible to state the following general conclusions concerning them:

1. They were period-markers erected to commemorate the passage of successive units of the Maya Era.
2. The unit chosen for this purpose was at first the katun, later the lahuntun, and still later, at the height of the Old Empire, the hotun.
3. The Initial and Secondary Series, Period Ending, and Calendar Round dates record specific days in the Maya chronological era, and the Supplementary Series set forth certain lunar and eclipse data concerning the Initial Series dates which they respectively accompany.

The record of the information given in No. 3 above exhausts approximately 50 per cent of the Maya glyphs, and what have we? The con-

¹ Tikal, Stela 17; Yaxchilan, Stela 11; Copan, Stela 3; Piedras Negras, Stelæ 1 and 3; and Quirigua, Stelæ D, E, and F; the two Initial Series on the Tikal stela, as well as the two on the Yaxchilan stela, in each case recording the same date.

temporaneous dates of the monuments, and occasionally other associated dates which were astronomically or historically important at the time, and finally certain lunar and eclipse data pertaining thereto; in short, we have used up half of the signs in setting forth these few matters.

The meaning of the remaining half of the inscriptions is largely a sealed book as yet, and here if anywhere we must look for the subject-matter of Maya history. Judging from the glyphs already deciphered, this would hardly seem to be a particularly promising field, but happily, with the above three numerical counts out of the way (the Initial, Supplementary, and Secondary Series), there appear to remain in the undeciphered glyphs very few of a numerical nature, and we may possibly look forward with some degree of confidence to finding, among the latter, place-names, personal-names, and signs of generalized meaning, by the aid of which we will eventually be able to fill in the background of Maya history as successfully as we have already constructed its chronological framework.

THE ORIGIN OF THE MAYA CIVILIZATION.

As pointed out in Chapter I, the Maya have been variously derived by one authority or another from Egypt, Carthage, Java, and southern India, even the lost continent of Atlantis having competed at one time for the honor of their origin. Lord Kingsborough, in nine costly volumes, sought to trace their descent from the Ten Lost Tribes of Israel, and Le Plongeon, reversing this at least usual order of procedure, tried to people the Old World from the New, believing Egypt to have been colonized from Yucatan more than 11,000 years ago.¹ Unfortunately, these highly improbable hypotheses have not entirely disappeared before the advance of the science, since the Egyptian connection has been revived recently by Smith on the basis of erroneous identifications and purely superficial similarities. (See note 4, page 28.)

Happily, in all this maze of extravagant speculation and improbable conjecture, we are not without some trustworthy lines of direct evidence, linguistic as well as archæologic, which throw light upon this important question. These are:

1. The provenance of the Tuxtla Statuette, upon which is inscribed the earliest date in the Maya hieroglyphic writing.
2. The provenance of the Huasteca, the only Maya-speaking tribe or group which is not contiguous to the main body of the Maya linguistic family, being entirely surrounded by other linguistic stocks, chiefly Nahuatlan and Totonacan, and the *only* Maya group, moreover, which lives in a region showing no traces of typical Maya archæological remains.
3. The provenance of the earliest dates in the region covered by the remains of the Maya civilization.

¹ Le Plongeon (1886, p. 113) says in this connection: "In my work *The Monuments of Mayax* I have shown how legends accompanying the images of several of the Egyptian deities, when interpreted by means of the Maya language, point directly to Mayax as the birthplace of the Egyptian civilization."

Let us examine these several lines of evidence in the above order. The Tuxtla Statuette was found near San Andres Tuxtla, in the State of Vera Cruz, Mexico, about 1902, and was acquired for the United States National Museum by Holmes in 1903. (See fig. 63.) It is of nephrite, 16.5 cm. high, 9.5 cm. in diameter at the broadest place, and represents a bird-like figure with a human head. On the front, as already noted several times, is inscribed the date 8.6.2.4.17, which is some 160 years earlier than the next earliest date, *i. e.*, on the Leyden Plate, and is the *earliest* date yet discovered in the Corpus Inscriptionum Mayarum. Bowditch has challenged the accuracy of this reading, and indeed that these glyphs record an Initial Series at all;¹ but on insufficient grounds the writer believes,² and the general opinion now is, that this specimen is not only genuine, but that its date also probably corresponds with the time of its execution.



FIG. 63.—Inscription on front of Tuxtla Statuette.

This date, as the writer has shown elsewhere,³ is recorded in bar-and-dot numerals without the accompanying period-glyphs, the value of the latter being determined by their positions from bottom to top in the number itself, like the Initial Series in the Dresden Codex.⁴

The provenance of this specimen, because of its very early date, is thus of unusual importance as possibly indicating where the Maya first began to record their chronology, and particularly so in view of the fact that it was recovered from a region where distinctive Maya remains have not been found. Indeed, San Andres Tuxtla is in Nahua⁵ country about 225 kilometers north of west from Comalcalco, the westernmost Maya site now known.⁶ In other words, it lies some distance *outside* of the territory now definitely associated with Maya remains, such as the typical Maya architecture and sculpture, for example.

Turning next to the second line of evidence mentioned above, the Huasteca, a Maya-speaking people living on the Gulf Coast-plain of Mexico between Tuxpam and the Pánuco River, in the States of Vera Cruz, Hidalgo, San Luis Potosí, and Tamaulipas, a unique condition is found. (See fig. 64.) Here we have a Maya linguistic island surrounded by a sea of Totonaca, Nahua, Otomi, and Tamaulipeca, that is to say, a branch of the Maya linguistic stock entirely separated by intervening stocks from the main body of the family, the nearest branch of which to the Huasteca is the Chontal, 750 kilometers to the southeast.⁷ Nor is this linguistic isolation the only extraordinary feature about the Huasteca. Although speaking a Maya dialect, their prehistoric culture, judging from its remains, shows no resem-

¹ Holmes, 1907, pp. 695, 696.

² Morley, 1915, pp. 194-196.

³ Thomas, 1911, map.

⁴ *Ibid.*, pp. 696-700.

⁵ *Ibid.*, pp. 266-273.

⁶ Charnay, 1887, pp. 194-210.

⁷ It is possible that the Totonaca were also originally a Maya branch. See Thomas, 1911, p. 49.

blance whatsoever to that of the Maya, either of the Old or New Empire, or even to those more culturally distant Maya, such as the Quiché, Cakchiquel, Tzutuhil, Tzotzil, Tzendal, Chontal, and Mame, to mention only the more important tribes, inhabiting the highlands of southeastern Mexico and southern and western Guatemala, for the distribution and linguistic affiliations of which see Appendix XII and figure 91.

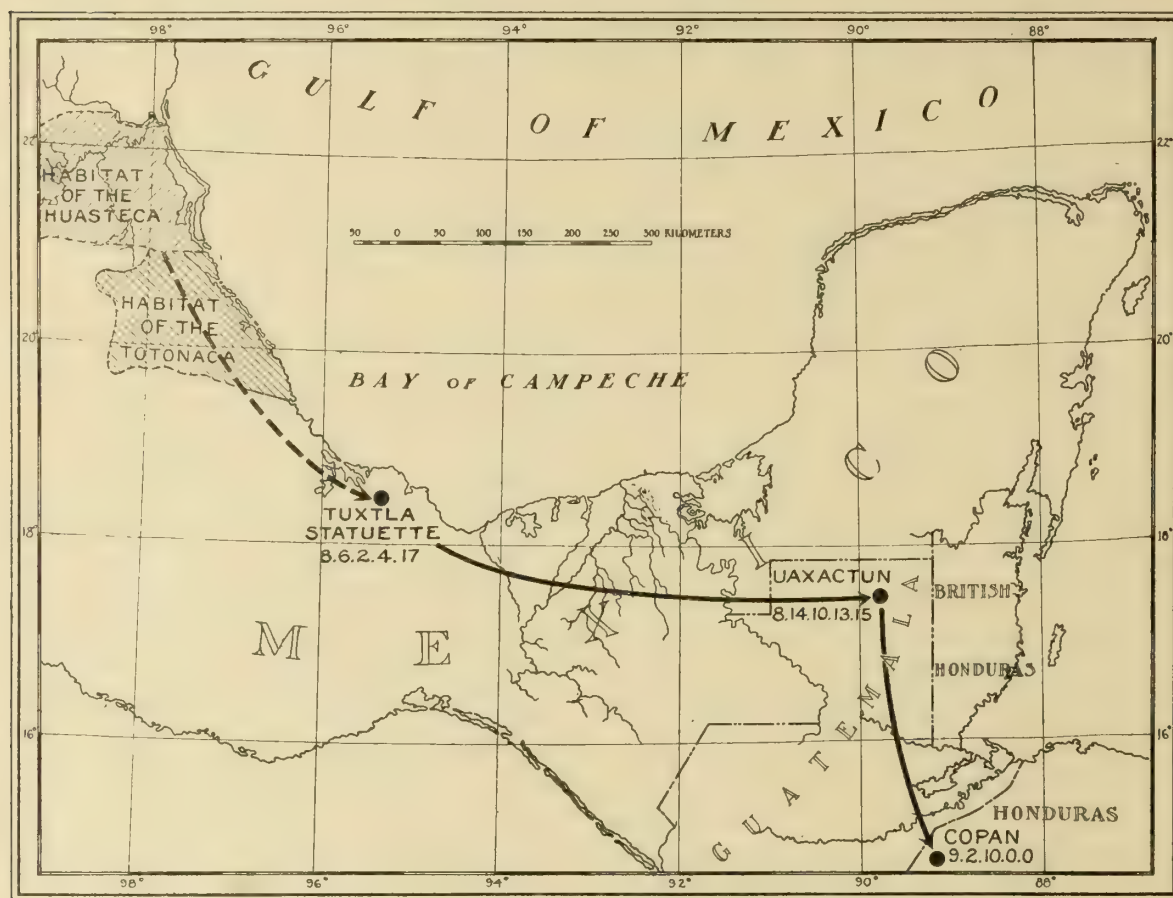


FIG. 64.—Map showing provenance of earliest Maya inscriptions and probable line of migration of the Maya into their historical habitat.

The Huasteca have no hieroglyphic writing, no highly developed calendar system based upon a 260-day Sacred Year and a 365-day solar year, and no chronology recorded in terms of a vigesimal system of numeration, the first two elements of which (the 260 and 365-day years), spread from the Maya to the several Zapotec, Miztec, Nahuatl and Totonac tribes of southern Mexico and Central America about the close of the Old Empire (10.2.0.0.0).¹ Their material culture, architecture, sculpture, and ceramic art, etc., show no resemblances to the corresponding phases of the Maya civilization, and, indeed, so dissimilar are the two cultures in all things, save only

¹ Brinton says in this connection (1893, p. 260): "There is no direct evidence that it [the hieroglyphic-writing and calendar] had extended to the Huastecas, of Maya lineage on the Rio Pánuco, but it was in vogue among the Totonacos, their neighbors to the south on the Gulf of Mexico."

that of a common language, that it is necessary to postulate a separation of the Huasteca from the other members of the Maya stock before the latter had developed the highly distinctive civilization by which they were characterized in later times.¹ Linguistically considered, it is necessary to regard both as having had a common origin, however remote; but culturally considered, the two must just as surely have separated before the Maya developed their civilization.

But how was this separation effected? Were the Huasteca left behind in a general southward movement of the Maya race, or do they represent a branch which pushed northward and away from the parent stock? This question can not be definitely answered until the Gulf Coast-plain of Mexico from the Grijalva to the Pánuco River has been carefully examined, and excavations made at the principal archæological sites, but already it seems probable that the former explanation is the more likely to be correct.

It will be seen in figure 64 that the provenance of the Tuxtla Statuette is about midway between the territory occupied by the Huasteca and the northern Peten region, where the *earliest inscriptions within* the Maya area have been found; that is, the earliest of all Maya texts comes from a region where typical Maya remains *have not been* found, which, however, stands about midway between the historic region occupied by the Maya farther south, and a region now occupied by Maya-speaking people, whose remains show *no* Maya cultural characteristics.

Sapper attempts to solve this problem on the basis of certain linguistic evidence, laying particular stress on the two following factors: (1) that the name for pine-tree among the different Maya-speaking peoples shows a remarkable agreement, and (2) his discovery of a small Maya tribe in the highlands of southeastern Chiapas, the Chicomucelteca, which he claims is more closely related to the Huasteca linguistically than any other tribe of the Maya stock. From the first he argues that the original home of the Maya was in a pine-tree country, *i. e.*, a mountainous land; and because of the second he suggests the highlands of Chiapas and Guatemala as the most likely place for this to have been:

"Then it seems as most probable that the mountainous country of Chiapas-Guatemala is the original seat of the Maya family of peoples, from whence at an early date the Maya and Chol tribes must have migrated to the lowland, while still earlier the Huasteca emigrated from Chiapas along the Atlantic coast-plain to the north and settled at their present seats."²

This, of course, may be true, but it is easier to conceive the Chicomucelteca, whom Sapper estimated doubtfully at not more than 4,000 in 1897, as moving southward to their present habitat in southeastern Chiapas at some early time, than it is to conceive the Huasteca, at present numbering at least 42,000, as moving northward from the highlands of Chiapas to their

¹ See Seler, 1902-1908, vol. II, pp. 168-183; Prieto, 1873; Joyce, 1914, and Staub, 1919, for descriptions of the Huasteca and their material culture.

² See Sapper, 1897, p. 398.

present habitat at an equally early date. And in conclusion, the writer believes the most probable place of origin for the Maya civilization is somewhere on the Gulf Coast-plain of Mexico between 18° and 22° north latitude. Indeed, in a later publication (1905) Sapper himself would seem to have reached a similar conclusion:

"On the other hand it is very difficult to distinguish the causes of the great distance separating the Huasteca from the Mayas with whom they belong ethnologically. And this difficulty has increased since I succeeded in finding in the village of Chicomucelo in Chiapas, near the Guatemalan frontier, a language which is very like the Huastec and is in striking contrast to the other members of the Maya stock of languages. Before we knew of the Chicomucelteca, we could assume that in the original immigration of the Maya nations from the north, a part remained behind in the Huasteca, and there the language developed in a peculiar way, because the connection with its kindred was interrupted. But how came the Chicomucelteca in their present home, forming a linguistic island in the midst of Maya peoples? Can it be that they are only a Huasteca colony, which has recently settled there."¹

Joyce believes the Maya civilization originated where it reached its zenith during the Old Empire, namely, in northern Guatemala:

"The isolation of this definitely Maya branch [*i.e.*, the Huasteca] would seem to imply that the Maya in the earliest days of all must have spread from Guatemala, up the east coast of Mexico as far as Tampico, penetrating into Chiapas, and possibly into Oaxaca, and colonizing the Mexican valley, where they found a primitive people akin to the earliest population of Michoacan. In times subsequent to what I may call this proto-Maya movement, there took place in the southern fertile region a great cultural development, culminating in the organization of a calendar, the invention of a script, and construction of the ruined 'cities.'"²

This is a far-reaching extension of the Maya indeed, and one which the archaeological evidence will hardly justify, certainly not as to their colonization of the Valley of Mexico, and probably not as to that of Oaxaca either.

Joyce's hypothesis of the autochthonous origin of the Maya civilization, he admits, is open to the serious *a priori* objection that no beginnings of the culture have been found in this region, "that civilization springs," as it were, "full-blown from the earth." He overcomes this difficulty by ascribing the failure to find these earlier traces to the lack of systematic excavation in this region (negative evidence at best) and to the fact (generally admitted) that the art of carving was first developed on some perishable material such as wood, and that therefore the earlier remains have not survived. Finally, he dismisses the evidence afforded by the Tuxtla Statuette with the brief comment that it is "artificial or mythical."³

The writer finds himself unable to agree with any of these several conclusions. In the first place, for reasons already stated, he believes the date inscribed on the Tuxtla Statuette was contemporaneous with the date of its execution; in the second place, that the Huasteca are much more likely to represent a backward branch of the Maya, who have always remained in or

¹ See Sapper, 1905, p. 5.

² See Joyce, 1914, p. 368.

³ *Ibid.*, p. 254 note 1.

near their original habitat, than that they were a more progressive element who pushed out first and more distantly than any other Maya branch; and finally, he believes sufficient evidence has been presented to show that it is extremely improbable the Maya developed their civilization in the region where it reached its zenith during the Old Empire, *i.e.*, generally speaking, the Peten region of northern Guatemala.

The hypothesis suggested below, on the other hand, should by no means be accepted as proved. As yet the evidence upon which it or any other is based, which seeks to explain the origin of the Maya civilization, is too insufficient to permit final conclusions, but the writer ventures to believe that it better meets the conditions imposed by the archæologic and linguistic evidence than any other.

At some remote epoch, sufficiently prior to 8.6.2.4.17 for them to have developed such a complex calendar, chronology, and hieroglyphic writing as they possessed even at that early date (about 100 B. C., see Appendix II), the Maya may have lived somewhere north of their habitat during the Old Empire (see fig. 64); and since a Maya-speaking people still inhabit such a region between Tuxpam and the Pánuco River, this may possibly have been the place.

Before developing their calendar, chronology, hieroglyphic writing, and distinctive civilization, by which they were characterized in later times, the great mass of the stock moved south, leaving behind, perhaps, the more backward elements, who later developed a far lower and different culture, but who continued to speak the mother Maya tongue, and who later became the Huasteca of historic times.

Somewhere between the above region and San Andres Tuxtla, if our hypothesis be correct, the Maya civilization had its origin, and their calendar and chronology had been perfected to such a point that by 8.6.2.4.17 they were able to carve upon a very hard stone (the Tuxtla Statuette has a hardness of about 7) the earliest date yet found in their hieroglyphic writing.

How long prior to this date it took them to make and record the necessary astronomical observations on the sun and moon, upon which their calendar is based, and having at last sufficient data at hand, how long it took them to perfect their remarkable chronological system, is of course impossible to say. The first process, however, would appear *a priori* to have been much the longer of the two. Since, once certain astronomical facts, such as the apparent revolutions of the sun and moon around the earth, had been determined, the invention of the whole elaborate calendar and chronology, including the arithmetical and notational systems, might have been the work of a single individual. Such highly complex and arbitrary inventions, while based upon data slowly and laboriously acquired over long periods of time, are apt to flower quickly once a certain stage is reached—a sudden liquidation of long-accumulated intellectual investments; and so the actual construction of the Maya calendar and chronology may have come swiftly,

once the astronomical data upon which they were based had been accumulated in sufficient quantities to establish therefrom certain dependable astronomical laws. And possibly this invention may have taken place not long prior to 8.6.2.4.17, the date on the Tuxtla Statuette, since no certain earlier contemporaneous date has yet been found in the Maya writing.¹

The hypothesis outlined above rests on the three following postulates:

1. That the date on the Tuxtla Statuette is 8.6.2.4.17,
2. That this date is the contemporaneous date of the specimen,
3. That the specimen was made in the general region where it was discovered, *i. e.*, that it was not brought from somewhere else by trade.

Concerning the first, the writer has no doubt as to its accuracy. The Initial Series number 8.6.2.4.17 leads to the terminal date 8 Caban o Kankin, and the day-sign coefficient 8 appears regularly in its proper place below this number, attached to a glyph the main element of which has unfortunately been effaced. (See fig. 63.) This is too close an agreement to be the result of coincidence only, and practically establishes, first, that the number is an Initial Series, and second, that it reads 8.6.2.4.17, even though the corresponding month-part of the Initial Series terminal date does not appear in the rest of the text, at least in a recognizable form. Possibly the month-part may have been suppressed altogether, as was not infrequently the case; for the discussion of which point see pages 138, 139, 157.

Concerning the second postulate above, since 8.6.2.4.17 is the *only* date on the specimen, the logical assumption is that this date was present time when it was inscribed, namely, that it is the contemporaneous date of the inscription.

The third postulate above is less certain than the other two, although the writer believes it is probably correct. The Tuxtla Statuette is small, however, 16.5 cm. high and 9.5 cm. maximum diameter, and could easily have been carried long distances in trade, straying far from its original place of execution. Still, it was found near San Andres Tuxtla, and perhaps the burden of proof rests on those who would argue that its original provenance was elsewhere.

Weighing all the evidence, therefore, and giving due weight to the fact that we have a Maya-speaking people 400 to 500 kilometers still farther to the northwest (see fig. 64), it seems not improbable that the Maya were in the San Andres Tuxtla region in 8.6.2.4.17, when the Tuxtla Statuette was made, and that they may have come hither from some region farther north and possibly from as far north as the present habitat of the Huasteca.

¹ Seler (1902-1908, vol. II, p. 30) assumes that the Maya graphic system, chronology, and calendar must have been developed at least *two* centuries before its first record on stone: "This would place . . . the nephrite plate from the Rio Graciosa (?) [the Leyden Plate] approximately in the year 900 [A. D.] and according to my previous assumption fix upon the year 700 as the latest limit, which we should have to assume for the discovery of the elements of the writing, the invention of the calendar, and the age of the kingdom of Tollan." It should be noted that at the time Seler wrote the above passage (1902) the Leyden Plate was the earliest dated object known. Aside from the inaccuracy of his equivalent dates in Christian chronology (see Appendix II, pp. 528, 534), this minimum limit of 200 years appears too great to the writer, since the date on the Tuxtla Statuette could conceivably, although improbably, have been recorded during the lifetime of the inventor of the graphic system and calendar.

One other point tends strongly to confirm the accuracy of this conclusion, namely, the existence of another tribe, the Totonaca, who occupy the coast-plain just north of Vera Cruz, *i. e.*, between the Huasteca and San Andres Tuxtla, and who are linguistically and culturally said to be related to the Maya. Speaking of their linguistic affiliations, Swanton says:

"The present tendency of linguistic opinion is to place the Totonac language in the Mayan family, thus bringing it into relation with the Huasteca. The long friendly relations between the two tribes corresponds with this opinion. Orozco y Berra¹ expressed his belief in the relationship of the two dialects."²

The material culture of the Totonaca, moreover, shows strong resemblances to that of the Maya; although this is probably due to actual contact with the Maya during or after the Great Period rather than to an earlier common origin of the two cultures. The so-called laughing heads of the Totonacan region, modeled in clay, are clearly Mayan in feeling, and in ceramic motives direct connections may be traced.³ Says Spinden in speaking of Totonacan art:

"This apparent connection in language is all the more interesting in view of the character of Totonacan art, which also shows a strong strain of Mayan feeling and technique in certain products but an unmistakable likeness to the archaic art of the Mexican highlands in certain other products. The pottery faces in the archaic style are advanced beyond the average of such work and probably represent a late phase. It is possible to bring forward examples of every degree of transition from the archaic style to the classical Mayan of Tabasco and Chiapas. Curiously enough it does not seem possible to extend these linking likenesses to the Huastecas."⁴

Finally, in a passage from Brinton, already quoted on page 404, note 1, he states that the Totonaca used a hieroglyphic writing and a calendar system. Taken together, these several factors point to the former racial unity of the Maya and the Totonaca, and in the present connection tend to indicate that the region where the Maya civilization originated lay somewhere to the northwest of San Andres Tuxtla and possibly even as far south as the present habitat of the Totonaca.

To trace the probable history of the Maya before the separation of the Huasteca from the main body of the stock becomes largely a matter of speculation. Spinden has shown that, coincident with the invention and primary dissemination of agriculture, possibly somewhere in and from the highlands of central Mexico, there seems to have spread over the greater part of Middle America and the northwestern corner of South America, largely restricted to arid tropical regions and avoiding the low Atlantic Coast-plain with its heavy rainfall and rich alluvial soil, an early homogeneous culture characterized by a simple and undeveloped religion, an unsymbolic art, pottery-making, and loom-weaving, which he calls the Archaic Horizon.⁵

¹ See Orozco y Berra, 1864, p. 214.

² Thomas, 1911, p. 49.

³ See Strelbel, 1884; *ibid.*, 1885-1889; *ibid.*, 1904; and Spinden, 1917, pp. 145-150.

⁴ Spinden, 1917, pp. 145, 146.

⁵ Spinden, 1915, pp. 451-459, 467-469, *ibid.*, 1917, pp. 43-64; *ibid.*, 1917a, pp. 181-188; *ibid.*, 1917b, pp. 269-276.

He further believes this culture was the common product of tribes then living in the highlands of central Mexico, but that the Nahua led in its development and dissemination, and that it was carried by them southward down the Pacific Coast-plain of Central America to Guatemala, Salvador, Nicaragua,¹ and as far south as the Isthmus of Panama.²

It appears as not unlikely that before this period the Maya may have found their way to the Gulf Coast-plain, possibly to the general region now occupied by the Huasteca or Totonaca. If so, they must have been largely a hunting and fishing people, depending only partly upon the many wild fruits and plants of the tropical forest to supplement their food-supply, moving to and fro in their quest for food, and not held to fixed abodes by the exigencies of an agricultural life, their time filled with and their energies absorbed by the struggle for bare existence.

To such a people, living in such an environment richly endowed by nature with a fertile soil and a warm, moist climate, the factors most essential for the growth of crops, and wanting only cultivation in order to yield a maximum return for a minimum effort, there may have come, from the highlands to their west, knowledge of the practice of agriculture, probably first as applied to the cultivation of corn.

Soon, because of the several factors just mentioned, the returns in proportion to the effort expended became very much greater than on the arid highlands; nature herself lent a more helping hand; the harvests became more and more abundant, until from scarcely sufficing for the general needs of the tribe from one harvest to the next, reserve supplies of food began to be accumulated, thus releasing from purely economic production energies which could be directed toward other ends, religious and esthetic.

The introduction of agriculture brought about a tremendous change in the lives of the groups which it touched. Instead of moving hither and thither, driven by the necessities of a game, fish, and only casually vegetarian dietary, living in temporary houses under a very loose social and governmental organization, agriculture for the first time made possible, indeed compelled, the establishment of permanent homes and developed the need for property rights. Larger social units than the family became possible, such as the village, clan, and tribe; and with less and less time being absorbed in the food-quest, more and more time was devoted to the development of the household arts; pottery-making and loom-weaving were invented; religion became more complex, and esthetic instincts wider and more elaborate in their expression.

Under some such conditions as these the Maya emerged from a nomadic, hunting, and fishing life to a sedentary agricultural one, and because their habitat was so richly endowed by nature to begin with, and far more fertile than that of the arid-highland peoples, the resulting civilization which they were able to develop gradually surpassed all surrounding cultures, and event-

¹ Spinden, 1917, p. 43.

² *Ibid.*, 1917b, p. 269.

ually under the Old Empire became the finest expression of the aboriginal American mind.

In some such a way, then, the Maya civilization had its origin, presumably somewhere on the Gulf Coast-plain of Mexico, probably between the Grijalva and Pánuco Rivers, 18° to 22° north latitude, and the writer believes, although this point is yet incapable of direct proof, some time toward the end of the second or the beginning of the first millenium before the birth of Christ. Finally, although the earliest *dated* text, the Tuxtla Statuette (*circa* 100 B. C.), is doubtless at least a thousand years later than this beginning, it is probable that future excavations in this region, archæologically so strategic in the solution of the Maya problem, will bring to light still earlier texts that will carry us back still nearer to the beginning of the Maya hieroglyphic writing, which, so far as the calculations involved in the Initial Series proper are concerned, is as perfected and as finished on the Tuxtla Statuette as in the latest Initial Series known, some 1,100 years later.¹

Turning next to the consideration of the third line of evidence mentioned on page 402, namely, the provenance of the earliest dates in the Maya area proper, that is, excluding the Tuxtla Statuette, which we have just seen was found without this region, we at last reach firm historical ground.

The next earliest surely dated contemporaneous texts in the Corpus Inscriptionum Mayarum are the following:

- | | |
|-----------------------|---------------|
| 1. The Leyden Plate, | 8.14. 3. 1.12 |
| 2. Uaxactun, Stela 9, | 8.14.10.13.15 |
| 3. Copan, Stela 24, | 9. 2.10. 0. 0 |
| 4. Tikal, Stela 3, | 9. 2.13. 0. 0 |
| 5. Tikal, Stela 10, | 9. 3.11. 2. 0 |
| 6. Uaxactun, Stela 3, | 9. 3.13. 0. 0 |
| 7. Copan, Stela 15, | 9. 4.10. 0. 0 |
| 8. Tikal, Stela 17, | 9. 6. 3. 9.15 |
| 9. Copan, Stela 9, | 9. 6.10. 0. 0 |

In addition to these, there are 16 other monuments at Copan and 10 others at Tikal which are earlier than the earliest monument now known at any third site, namely, Stela 25 at Piedras Negras, recording the hotun-ending 9.8.15.0.0.

Analyzing, first, the provenance of these earliest dated texts, we find that the earliest one of all is on a small nephrite celt, the Leyden Plate (see fig. 65), found just west of the mouth of the Motagua River near the Rio Graciosa. It is only 21.6 cm. long, 7 to 8.5 cm. wide, and 0.2 to 0.5 cm. thick, in fact, so small an object (much smaller and lighter than the Tuxtla Statuette) that it could easily have been carried long distances with little or no inconvenience. When this is taken into consideration with the fact that jade (neph-

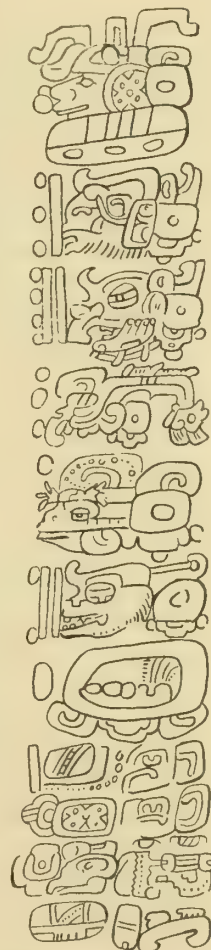


FIG. 65.—Inscription on Leyden Plate.

¹The latest Initial Series known is that on the back wall of the Temple of the Initial Series at Holactun (Xcalumkin), Yucatan. As shown by the writer elsewhere (1918a, p. 274), this probably records the date 11.2.8.4.9, although 10.9.8.4.9 is not an impossible reading.

rite or jadeite) was the most precious of all materials to the ancient Maya, it will be seen that the precise locality where such a small object was found is of little value in determining its place of origin. It was so small of bulk, so light of weight, so precious of material, and so cherished because of its hoary antiquity even as early as the Middle Period of the Old Empire, that it would have been, and possibly was, carried far from its place of manufacture.

This same objection, however, can not be raised against the next inscription, that on Stela 9 at Uaxactun (see fig. 66), which is less than 8 years later than the Leyden Plate, and is the oldest monument, *i. e.*, large, monolithic remain, yet found in the Maya area, or indeed recorded in the Maya hieroglyphic writing. This site was discovered by the Carnegie Institution Central American Expedition of 1916, in the Department of Peten, Guatemala, north of Lake Peten Itza, some 25 to 30 kilometers northwest of Tikal and 600 kilometers south of east from San Andres Tuxtla (see plate 1 and fig. 64).¹

This monument is a large shaft of limestone, 2.9 meters high (above the ground), 1.22 meters wide at the base, 76 cm. wide at the top, and 60 cm. thick, and weighs several tons, much too heavy an object, in fact, ever to have been moved far from its place of manufacture. It is still standing, although leaning far out of the perpendicular, with its front forward, in which position the back or surface having the single glyph-panel has suffered more from weathering than the front. Even if there were not other very early monuments at Uaxactun in addition to Stela 9,² we are justified, on the evidence afforded by this monument alone, in assuming that we have here a stela *in situ*, recording a contemporaneous Cycle 8 date; in other words, that on the basis of the dated remains *in situ* Uaxactun is the oldest Maya site yet discovered.

Omitting Stela 20 at Copan, although the writer believes its date is 9.1.10.0.0 as suggested, the next earliest monument is Stela 24 at Copan, which is 160 years later than Stela 9 at Uaxactun; and then during the next 80 years follow Stelæ 3 and 10 at Tikal, Stela 3 at Uaxactun, Stela 15 at Copan, Stela 17 at Tikal, and Stela 9 at Copan.

Analyzing next the dates of these nine monuments, it will be found that Stela 9 at Uaxactun is 166 years later than the Tuxtla Statuette; in other words, that during the interval between 8.6.2.4.17, the date of the latter, and 8.14.10.13.15, the date of the former, the Maya had continued their migration southeastward and had occupied the northern part of the

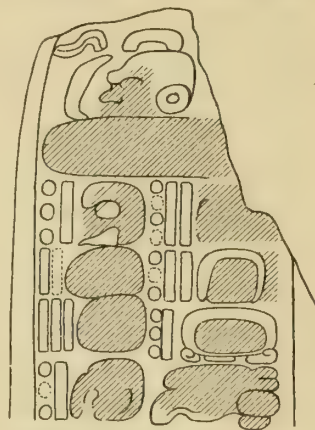


FIG. 66.—Inscription on Stela 9 at Uaxactun.

¹ See Morley, 1916a, pp. 339-341. This site was named Uaxactun because of the discovery of the Cycle 8 Initial Series on Stela 9 here, *uaxac* being Maya for 8, and *tun* Maya for stone, *i. e.*, "8 stone."

² Other early monuments at Uaxactun are: Stela 5, 8.15.10.3.12(?); Stela 3, 9.3.13.0.0; and Stela 6, 9.6.7, or 8.7.7.3.

region (see plate 1 and fig. 64), where three centuries later they were to attain such cultural brilliance.

Uaxactun is approximately 600 kilometers south of east from San Andres Tuxtla, which latter place, as we have already seen, is about half-way between the historic habitat of the Huasteca and the northern Peten region, the earliest known historic habitat of the Maya.

Still another 160 years, seven generations later, and we find that some branch of the Maya had found its way 300 kilometers farther south; had reached the Copan Valley, and had established itself there with sufficient confidence and permanency to be able to execute and erect Stela 24 in 9.2.10.0.0, or possibly Stela 20, a katun earlier.

On the basis of the provenance and dates of the earliest surely deciphered contemporaneous inscriptions, therefore, it appears probable that Copan is not so old as Uaxactun by some 160 years; and even if we admit that the date of Stela 20, the earliest monument at Copan on stylistic grounds, is correctly deciphered as 9.1.10.0.0, this only cuts down the priority of Uaxactun by 20 years. But this important question as to which is the older city and which region the first occupied does not rest on the evidence supplied by these two monuments alone. Whereas Stela 20 is the only monument earlier than Stela 24 at Copan that we can possibly admit even on stylistic grounds, there are several other early monuments at Uaxactun and Tikal, besides those given on page 411. Thus, for example, Stela 5 at Uaxactun may have another Cycle 8 Initial Series, 8.15.10.3.12, within 20 years of that on Stela 9; and again, although the earliest surely deciphered date at Copan (Stela 24) is 3 years *older* (or if we accept the reading suggested by the writer for Stela 20, 23 years *older*) than the earliest surely deciphered date at Tikal (Stela 3), there is this important difference between these two great cities: At Copan we have nothing earlier than Stela 20, even on stylistic grounds, whereas at Tikal there are at least 7 other stelæ the dates of which have not yet been deciphered, but which are fully as early as Stela 3 on stylistic grounds, and 4 of which are almost certainly even earlier.

Maler¹ describes 17 sculptured stelæ at Tikal, and Tozzer² enumerates 51 plain ones. Of the former only 4, Nos. 5, 11, 16, and 6 (?), belong to the Great Period, all the rest dating not only from the Early Period, but also from its earlier half.³ Of the remaining 13 sculptured stelæ, 2, Nos. 14 and 15, are so badly injured that Maler took no photographs of them, and of

¹ Maler, 1911, pp. 62-91.

² Tozzer, 1911, p. 102.

³ Thus, for example, there are no dates at Tikal after 9.6.3.9.15 (Stela 17) until 9.14.0.0.0 (Stela 16), an interval of 150 years. It is highly probable, however, that the 51 plain stelæ here were erected during this period, their inscriptions and designs being painted upon them instead of engraved. If we suppose them to have been the hotun-markers (and of the 17 sculptured stelæ only 2, Nos. 11 and 16, record hotun-endings, 10.2.0.0.0 and 9.14.0.0.0 respectively), and if we suppose further that only the lahuntuns and katuns were marked up to 9.10.0.0.0, there would have been required between 9.3.0.0.0 (the next katun after Stela 3) and 10.2.0.0.0, the date of Stela 11, 63 stelæ, and deducting 2, for Stelæ 11 and 16, because they record two katun-endings within this period, we will have left 61 stelæ, or only 10 more than the number of plain stelæ already discovered. It seems not unlikely, therefore, that the hotuns at Tikal may have been marked by painted, plain stelæ instead of carved ones.

the remaining 11, on stylistic grounds 4 are surely earlier than Stela 3,¹ 3 as early,² and only 3 are later.³ That is to say that whereas at Copan we have only 1 stela (Stela 20) which may be earlier than 9.2.10.0.0 (Stela 24), at Tikal we have at least 4 (Stelæ 4, 7, 8, and 13), and possibly 3 more (Stelæ 1, 2, and 9), which are earlier than 9.2.13.0.0 (Stela 3).

This evidence at Tikal, coupled with that at Uaxactun, where we have one monument (Stela 9) if not two (Stela 5) recording dates actually 140 years earlier than the earliest possible contemporaneous date now known at Copan, proves on the chronologic side almost conclusively that Uaxactun-Tikal is considerably older than Copan. This is established not only by the *actual priority* of the Uaxactun dates, but also by the *mass of the evidence*, more earlier monuments being known at Tikal, although not exactly dated, than at Copan.

Finally, the geographic location of these two great Maya centers is such as to make it extremely probable that Tikal is the older. Not only is Tikal nearer the center of the Old Empire, and Copan far out on the southeastern frontier (see plate 1), but also the general trend of early Maya migration was from northwest to southeast, the earliest dated Maya object known being found 300 kilometers nearer Tikal than Copan.

Summing up these several lines of evidence as to the origin of the Maya civilization, it appears as not improbable that the introduction of agriculture from the highlands of central Mexico to the Gulf Coast-plain may have been the primary factor in releasing the Maya from complete absorption in the continuous struggle for bare existence.

Cultivation applied to this naturally rich region yielded a far more abundant return than in the arid highlands, and the exigencies of the agricultural year, the clearing, planting, and harvesting seasons, must soon have turned the minds of the Maya priesthood toward the accurate measure of time and the study of the seasonal year and of the sun and moon.

After many generations of recorded observations on these bodies, certain natural laws became deducible therefrom, and then some Mayan Hipparchus invented the calendar, possibly first a 260-day Sacred Year (the tonalamatl) built up on the permutation of 13 numbers and 20 names, perhaps next a 365-day solar year (the haab), composed of 18 periods of 20 days each and a closing period of 5 days, and still later a combination of the two, in which the 260 differently named days were fitted into the 365 positions of the year, giving a new period (the Calendar Round) composed of 18,980 dates, 52 years of 365 days each or 73 years of 260 days each. Still later some one devised the remarkable Maya vigesimal numerical system, numeration by position, *i. e.*, from bottom to top, and the ingenious Maya arithmetical notation of bars and dots, and probably later the head-variant numerals, and thus the calendar and chronology gradually took shape.

Some time prior to these discoveries, however, the Maya would seem to have begun a general movement southeastward, in which the possibly

¹ Stelæ 4, 7, 8, and 13.

² Stelæ 1, 2, and 9.

³ Stelæ 10, 12, and 17.

more backward elements, later to become the Huasteca, were left behind in the region between the Pánuco River and Tuxpam in the State of Vera Cruz. Moving southeastward, slowly we may feel sure, the Maya would appear to have been established in the region around San Andres Tuxtla in 8.6.2.4.17, by which time their chronology, hieroglyphic writing, notational system, and proficiency in stone-carving were sufficiently perfected to enable them to carve upon a hard, refractory material such as nephrite an inscription in their graphic system.

Up to this point our history of the probable movements and activities of the Maya has been largely speculative, based principally upon the existence of a Maya-speaking people of non-Mayan culture far to the northwest of the recognized Maya culture and linguistic areas, and upon the provenance and date of the Tuxtla Statuette, but from this time onward we enter upon firm historical ground.

By 8.14.10.13.15, some 165 years later, we find the Maya established at Uaxactun in northern Peten, 600 kilometers still farther south and east, and by 9.2.10.0.0 and probably by 9.1.10.0.0, 160 or 140 years later respectively, we find them in the Copan Valley and sufficiently at home there to be quarrying, carving, and erecting monuments and presumably in building a city.

If the hypothesis advanced here is correct, namely, that Uaxactun and Tikal are much older than Copan, at least by a century, we need not look for the beginnings of the Maya hieroglyphic writing at Copan at all, or indeed for inscriptions much earlier than Stela 20, since under this hypothesis the Maya are assumed to have developed and perfected their chronological system and hieroglyphic writing, even to the point of recording it upon stone monuments, long before they reached Copan, and the beginnings of it must be sought elsewhere, possibly in northern Peten, but more probably somewhere on the Gulf Coast-plain of Mexico between the Pánuco and Grijalva Rivers.

HISTORY OF COPAN DURING THE OLD EMPIRE.

THE EARLY PERIOD.

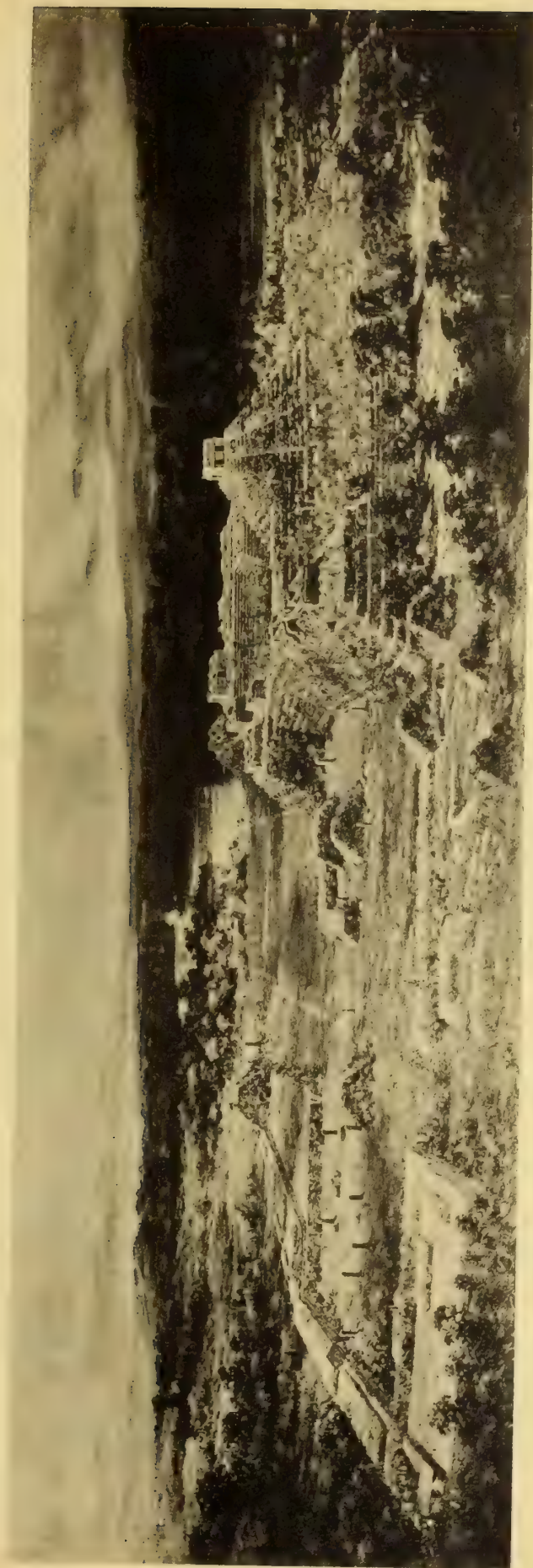
As deciphered in Chapters II, III, and IV, probably 95 per cent. of the Copan dates are correct as given; certainly those which are recorded as Initial Series, Secondary Series, and Period Endings have no greater proportion of error than 1 out of 20; and of the remaining Calendar Round dates at least 75 per cent. are probably correctly deciphered. Moreover, if the last also happen to be hotun-endings as well, such as the contemporaneous dates of Altars Z, G₃, Q, W', W, G₂, and G₁, Temple 21a, and the Reviewing-stand in the Western Court for example, the percentage of accurately deciphered dates is even higher. Thus, in spite of effacement due to erosion and breakage, and even the loss of essential parts of the record on still missing fragments, it is probable that less than 5 per cent. of the readings suggested in the foregoing pages are incorrect.

In utilizing these chronologic data for the reconstruction of the historical background at Copan, it is necessary to bear in mind the fact that all dates recorded *were not contemporaneous*, even at the times the monuments presenting them were severally erected, and that in order to analyze their significance properly, it is necessary to discriminate sharply between the surely contemporaneous dates and those which were either *historical, i. e.*, in the past, or *prophetic, i. e.*, in the future, at the times they were recorded. If this distinction is not made, the considerable preponderance of late dates due to the extensive use of Secondary Series and Calendar Round dating in texts of the Great Period will unduly emphasize the importance of that period, and mislead especially as to the number of texts emanating therefrom, as compared with those from the Middle and Early Periods.

It has been shown in the preceding section that the branch of the Maya which founded and built Copan probably reached there with a full knowledge and ample experience in the use of their peculiar chronologic and graphic systems; that is to say, they probably did not develop either in the region of Copan. Indeed, the evidence presented in the preceding section tends to establish that they had been engraving their records on large stone monuments (Stela 9 at Uaxactun) for at least 156 years before the earliest certain date at Copan (Stela 24), and on smaller stone objects (the Tuxtla Statuette) for at least 321 years before; in short, it would appear that the Maya reached the Copan Valley at a high level of cultural attainment and set about the intensive occupation of the region with little loss of time. And the next question is, when and where did this first occupation take place?

It has been shown in Chapter II that, on stylistic grounds, Stela 20 is pretty surely the oldest monument at Copan, and the best reading of its fragmentary date, 9.1.10.0.0, agrees with this; first, because of this fact, *i. e.*, there being no earlier monuments known at the site, and second, because by this date the Maya had already been carving their inscriptions on stone for such a long time (more than three centuries), that the carving of stelæ could have offered no real difficulty to them even in a newly occupied region; the writer is disinclined to push back the date of their arrival in the Copan Valley much before 9.0.0.0.0. Indeed, if Stela 20 were the first hieroglyphic monument to be carved at Copan, and certainly no other of earlier style has yet been found there, it is even possible that they may have arrived shortly after 9.0.0.0.0. In round numbers, we may probably say that the Maya reached this region not much before the close of Cycle 8, and that by the beginning of Cycle 9 its occupation was under way, and finally that as early as 9.1.10.0.0, less than 30 years later, the capital, or principal settlement in the valley, had been located at Group 9, which answers the question propounded above as to when and where this occupation first took place.

It may be objected that this reading for the date of Stela 20 is doubtful; but even if this were true, the date of Stela 24, which is surely deciphered, is only 20 years later.



The Ruins of Copan, Honduras, looking east. After the painting by Carlos Viera.

Courtesy of The Panama California Exposition, San Diego, California

Or again, it may be held that earlier monuments will yet be found at Copan which will carry back the occupation of the site much earlier. While this is of course possible, it is nevertheless significant that such earlier monuments have not come to light as yet, in spite of the fact that Group 9, apparently the oldest settlement in the valley on the basis of the dated remains, has been more thoroughly excavated than any other place in the valley, the Main Structure not excepted, owing to the fact that the modern village was built on its site. On the contrary, such monuments as have been found under conditions indicating secondary usage are all not only of later style than Stela 20, but also of later date.

Or finally, it may be contended that the earlier monuments at Copan were made of wood and have consequently disappeared; but against this objection may be adduced the fact that there is at least *one* stone stela known, at Uaxactun, which is surely 137 years older than the date suggested for Stela 20, and there are a half a dozen others at Tikal probably from 20 to 50 years older than Stela 20. In a word, stone stelæ had been known for five or six generations at least before the date suggested here for Stela 20.

In view of all the foregoing evidence, (1) the lack of a single text at Copan, which, even on stylistic grounds, can possibly be older than Stela 20 in spite of all the archæological work, especially excavation, that has been done there during the past 35 years, (2) the presence of inscribed stone stelæ elsewhere of every much earlier date, and (3) the dates of Stelæ 20 and 24 themselves, the writer believes it probable that the Maya reached the Copan Valley with a full knowledge and understanding of their chronology and hieroglyphic writing and with an ample previous experience in the art of stone-carving, about the beginning of Cycle 9, and probably settled first at Group 9, Stela 20 possibly being the first monument erected there.

That Group 9 was the first settlement in the valley rests on strong archæological evidence, as we have already seen in Chapter II:

1. The two earliest surely dated monuments, Stelæ 24 and 15, are both found here, as well as the one which we have seen is probably the earliest of all, Stela 20.
2. More early monuments are found here than at all the other groups in the valley combined, including the Main Structure. Of the 22 monuments of the Early Period under observation, not including Fragments V' and Fragment S', 12, or more than half, were found at this group.
3. Of the 10 monuments outside of this group, practically every one occurs in positions indicating *secondary usage*, *i. e.*, in positions for which they were not originally designed.
4. Of the 15 Early Period fragments now known at Copan, all but one, Fragment S', were found here.

Nor could the ancient Maya have chosen a better site in the whole valley for their first settlement. At this point a bench of the foot-hills extends out into the valley from the north side. Nearby, along its eastern base, flows the Rio Sesesmil, offering at all times an abundant supply of potable water fresh from the mountains; and below, to the east, south, and

west, for a kilometer or more, stretches the valley-bottom, a rich alluvial plain, subjected to annual overflow in its lowest parts bordering on the Copan River, and capable, under cultivation, of supporting a large population.

In later times, so well chosen was this spot and so admirably adapted for a small settlement, that the modern village was also located in the same place, the plaza of the one being roughly coincident with the plaza of the other, and unfortunately, the building material of the one furnishing the building material for the other.

It appears probable that the religious center of this first settlement was the mound of Stela 7, since of the twelve early monuments found at Group 9, eight were recovered here, Altars P' and Q' and Stelæ 20, 24, 25, 15, 18, and 7 (fig. 22, *d'*, *b'*, *v*, *q*, *e'*, *s*, *x*, and *o* respectively); and of the remaining four, two, Stelæ 21 and 22, show unmistakable signs of secondary usage in ancient times, the former having been built into the hearting of the high mound at the southeastern corner of the plaza (fig. 22, *k*) and the latter being found in one of the stone stairways around the small court at the southwestern corner of Group 9 (fig. 22, *w'*), and the remaining two, Altars L' and M', must have come from nearby. (See fig. 22, *g* and *i*, respectively.)

Possibly the first monument to be erected in the original settlement on the banks of the Rio Sesesmil was Stela 20 in 9.1.10.0.0 (fig. 22, *v*), and from this time on for the next 160 years, Group 9 grew steadily, increasing in size until its religious and civic center occupied practically the whole of this little bench jutting out into the valley.

It has been pointed out that practically all the monuments of the Early Period which have been found *outside* of Group 9 occur in positions strongly indicating secondary usage, as follows:

- Altars J' and K', in the foundations of Stela 10 (9.10.19.13.0) at Group 12.
- Altar X, in the foundations of Stela 5 (9.13.15.0.0 or 9.14.0.0.0) at Group 8.
- Altar Y, in the foundations of Stela 4 (9.17.12.13.0) at the Main Structure.
- Altar A', in the foundations of the Hieroglyphic Stairway (9.16.5.0.0) at the Main Structure.
- Stela 16, found broken at the Main Structure, possibly not reused.
- Stela 17, reused as a building-block in the Great Plaza at the Main Structure after 9.12.5.0.0.
- Stela E, re-erected on the terrace west of the Great Plaza at the Main Structure after 9.12.5.0.0.
- Stela P, re-erected in the Western Court at the Main Structure about 9.17.0.0.0.
- Fragment S', reused as a building-block in the facing of Mound 9 (9.11.15.0.0) at the Main Structure.

That is, with the possible exception of Stela 16, they all occur in positions for which they were not originally designed, and hence they may have been, and doubtless were, carried to these later positions from some earlier group or groups. Finally, since more than half of the early monuments have been found at Group 9 (nearly two-thirds, if we include Altar X and Stela 9 at Groups 8 and 10 respectively, each within a kilometer of Group 9), it

appears as not improbable that all the outlying monuments of the Early Period originally had been erected at Group 9, which we may perhaps appropriately call Old Copan, being in all likelihood the first settlement in the valley.

The dates and provenance of Stelæ 7, E, and P, moreover, greatly strengthen this hypothesis. It has been shown:

1. That Stela 7 is the only monument of the Early Period which was practically *in situ* (*i.e.*, fallen directly above its original foundations) when found.

2. That Stelæ E and P at the Main Structure are surely not *in situ* where now found, since they occur in places which were not built until long after their contemporaneous dates.

3. That Stelæ 7, E, and P commemorated three successive hotun-endings in the Long Count, 9.9.0.0.0, 9.9.5.0.0, and 9.9.10.0.0 respectively.

It seems reasonable to infer from these facts that Stelæ E and P, which marked the next two hotuns after 9.9.0.0.0, the date of Stela 7, had originally been erected at Group 9, probably near Stela 7, and that some time later, after the Great Plaza was built (*i.e.*, after 9.12.5.0.0), Stela E and its altar were removed from Group 9 and carried to the Main Structure 2 kilometers east and re-erected there on the terrace on the west side of the Great Plaza, and further, that some time after the Western Court had been completed (about 9.17.0.0.0), Stela P was similarly removed from Group 9 and re-erected in the Western Court.

Stela P is the last monument of the Early Period, and between it and Stelæ 12, 2, 10, 19, 23, 13, and 3, the first stelæ of the Middle Period, there is a lacuna in the sequence of the monuments of 25 or 30 years. Moreover, as will appear presently, not one of these seven earliest stelæ of the Middle Period is at Group 9, and only two of them are at the Main Structure, the rest being scattered from Santa Rita (Group 1), 14 kilometers east of Group 9, to Hacienda Grande (Group 13), 3.5 kilometers west of Group 9.

It appears probable, therefore, that at the end of the Early Period (after 9.9.10.0.0) a tremendous expansion took place, in the course of which the whole valley was intensively occupied for the first time, a number of smaller groups, Nos. 1, 2, 3, 12, and 13 being established (see plate 3); and coincident with this centrifugal movement, Group 9 began to decline in importance, no monuments at all being erected there during the Middle Period, and only five during the Great Period.

Assuming, then, that all the monuments of the Early Period, wherever found, were originally erected at Group 9, let us next examine the dates of the 13 stelæ now known from the period:

Stela 20	Stela 16	Stela 24	Stela 7
Stela 21	Stela 17	Stela 15	Stela E
Stela 22	Stela 18	Stela 9	Stela P
Stela 25			

Of these, the 7 in the first two columns are only doubtfully deciphered, although Stelæ 20 and 25 are probably correct as given, and Stelæ 17 and 18 possibly so. The six in the last two columns are surely deciphered.

Beginning with the surely deciphered group, it has been shown in Chapter II that every one records a hotun-ending,¹ and that all but one, Stela E, a second or fourth hotun-ending, that is, a lahuntun or a katun-ending. Moreover, of the remaining 7, at least 4 (Stelæ 20, 25, 17, and 18), also probably recorded katun or lahuntun-endings.

This important practice of erecting stelæ at the expiration of second and fourth hotuns, *i. e.*, lahuntun and katun-endings respectively, is encountered for the first time here at Copan in 9.1.10.0.0 or 9.2.10.0.0, and at the expiration of first and third hotuns in 9.9.5.0.0, although the latter custom appears 10 years earlier in 9.8.15.0.0 at Piedras Negras (Stela 25), and by the Middle Period is found everywhere in the Old Empire.

Because of this fact, and also because *all* of the *surely* dated early monuments elsewhere (see p. 411), the Tuxtla Statuette, the Leyden Plate, Stelæ 9 and 3 at Uaxactun, and Stelæ 3, 10, and 17 at Tikal, were *not* erected on hotun, lahuntun, or katun-endings, it appears reasonable to infer that this important custom, which in one form or another survived until the close of the New Empire in 1541 in northern Yucatan, a period of more than 1,200 years, may have originated at Copan as early as 9.1.10.0.0 and spread elsewhere from here.²

If the 13 stelæ of the Early Period at Copan, all record lahuntun or katun-endings except Stela E, which records a third hotun-ending, let us ascertain how many lahuntuns and katuns there were between the dates of the earliest and latest of these monuments.

Between 9.1.10.0.0 (Stela 20) and 9.9.10.0.0 (Stela P) inclusive, there are 17 lahuntuns and katuns, for which we have only 12 stelæ, exclusive of Stela E; that is, apparently 5 or 6 are still missing. An attempt has been made in the following list to assign 10 of these 12 stelæ to these 17 period-endings, the monuments marked (?) probably being correctly deciphered as given, those marked (??) being very doubtful. Stela 25 probably records the same lahuntun-ending as Stela 24; and it is impossible to say exactly where Stela 16 belongs, probably somewhere between 9.4.10.0.0 and 9.7.10.0.0.

Stela 20, 9.1.10.0.0 (?)	Stela 17, 9.6. 0.0.0 (?) ³
9.2. 0.0.0	Stela 9, 9.6.10.0.0
Stela 24, 9.2.10.0.0	Stela 18, 9.7. 0.0.0 (?)
9.3. 0.0.0	Stela 21, 9.7.10.0.0 (??)
Stela 22, 9.3.10.0.0 (??)	9.8. 0.0.0
9.4. 0.0.0	9.8.10.0.0
Stela 15, 9.4.10.0.0	Stela 7, 9.9. 0.0.0
9.5. 0.0.0	Stela P, 9.9.10.0.0
9.5.10.0.0	

¹ The altar of Stela E, which actually records the current hotun-ending, has been regarded as textually one with Stela E in this study. (See pp. 112, 128).

² If the readings suggested on page 392, note 1, for Stelæ 8 and 9 at Tikal, 9.0.10.0.0 and 9.2.0.0.0 respectively, should be correct, these monuments would be the earliest hotun-markers now known, and they would nullify the above conclusion, making Tikal the first Maya city to have inaugurated this important custom instead of Copan. As already noted, however, these two readings are so doubtful that they have been disregarded in the conclusions set forth in this chapter.

³ Under the postulate that the Early Period stelæ prior to 9.9.5.0.0 record either lahuntun or katun-endings, Stela 17 can only be either 9.6.0.0.0 or 9.6.10.0.0, since its katun coefficient is surely 6 and the former is chosen here because the latter date is recorded on Stela 9.

Even if the doubtfully deciphered stelæ, 22, 17, 18, and 21, are correctly assigned above, and allowing Stela 16 for one of the unfilled period-endings, there are still six lacunæ in the sequence of the early monuments. Since the first 4 early monuments concerning which there is little or no doubt all record lahuntun-endings, *i.e.*, Stelæ 20, 24, 15, and 9, perhaps at first, and up to 9.6.0.0.0, stelæ were erected only on lahuntun-endings, and the katun-endings were permitted to pass by without being thus marked. Such an explanation is very unsatisfactory, as it presupposes the half-katun periods were of more importance than the katuns themselves, which would have been an unusual belief, to say the least. On the other hand, the 3 earliest surely deciphered stelæ all record lahuntun-endings, and if this were the case, and assuming Stela 22 may be referred to the lahuntun-ending 9.3.10.0.0, there would be only one break in the monumental sequence prior to 9.6.0.0.0, namely, 9.5.10.0.0, to which we may possibly assign Stela 16.

If the katun-endings were also marked from 9.6.0.0.0 on, we have two lacunæ in the latter half of the Early Period, namely, at 9.8.0.0.0 and 9.8.10.0.0, and even if Stela 21 be assigned to either of these dates, it still leaves two lacunæ, as in that case there is no monument for 9.7.10.0.0.

These results are not altogether satisfactory. Some of the readings suggested are very uncertain, and the assumption that lahuntun-endings were of greater importance than katun-endings, in spite of the fact that the remains apparently indicate such a fact, is even more doubtful. However, the following facts may be accepted as established:

1. Surely as early as 9.2.10.0.0 (Stela 24), and probably as early as 9.1.10.0.0 (Stela 20), the practice of marking the expiration of the successive lahuntuns and katuns was inaugurated at Copan.
2. Of the 6 surely dated monuments of the Early Period at Copan, 5 record lahuntun and katun-endings and the sixth a third hotun-ending.
3. On the basis of this periodicity for the erection of the stelæ, *i. e.*, no first and third hotuns marked by stelæ prior to 9.9.5.0.0, there are only 6 out of the 17 possible period-endings, between 9.1.10.0.0 and 9.9.10.0.0 inclusive at Copan, for which no corresponding stelæ have been found.
4. Finally, this practice is found to have prevailed so much earlier at Copan than anywhere else, the first occurrence elsewhere being at least 125 years later, if we exclude the doubtfully deciphered Stelæ 8 and 9 at Tikal, that there are excellent grounds for believing it may have originated at Copan, and from there spread elsewhere in the Old Empire and later carried over into the New Empire, having been the determining factor in the erection of stelæ for more than 1,200 years.

One more point in connection with the Early Period at Copan demands our attention. In Chapter III, it will be remembered, Spinden expresses the belief that the two primitive human figures found under Altars X and Y in the foundations of Stelæ 5 and 4 respectively are the earliest sculptures at Copan, but since neither has any glyphs carved upon it, exact dating is impossible.

This lack of exact chronological data about either is particularly unfortunate in view of the fact that both indubitably resemble similar

sculptures of the Archaic type found in the highlands of Salvador and Guatemala, south and west of Copan respectively, notably a stone figure at the Hacienda of Mirafior, just outside of Guatemala City. (See fig. 67, *a*, *b*, and *c*, and pp. 208, 209.) Thus, had it been possible to date either of these two sculptures from Copan in the Maya chronological system, there would



FIG. 67.—Anthropomorphic figures of the Archaic type: *a*, Copan, foundations of Stela 5; *b*, Copan, foundations of Stela 4; *c*, Hacienda Mirafior near Guatemala City.

have been established at least one definite point of contact between the Old Empire and the Archaic culture, which seems to have had a far vaster extension, and doubtless a much earlier origin than the Maya civilization as pointed out in the preceding section.

Possibly these two figures may have been taken from some of the earlier inhabitants of the region, some Archaic people living south and west of Copan, and were placed in the foundations of Stelæ 4 and 5 as objects of unusual importance and sanctity. Or again, they may be very early Maya copies of still earlier Archaic sculptures found by the Maya when they first reached the region.¹ Or again, they may date from a period at Copan before the hieroglyphic writing had been transferred to stone, a view the writer does not share, however, since he believes the Maya had been carving their inscriptions on stone for several centuries before they reached Copan. In any case, they do not controvert any of the conclusions reached above, and they may probably be referred to the same general period as Stela 20.

Summing up the history of Copan during the Early Period, it appears probable that the branch of the Maya who colonized this region reached the Copan Valley shortly before, or not later than, the beginning of Cycle 9. In this connection the provenance and date of the Leyden Plate should be borne in mind. This small nephrite plate, as already noted on page 411, was found near the mouth of the Motagua River, some 130 kilometers northeast of Copan, and bears the very early date 8.14.3.1.12, which is about 145 years earlier than the reading here suggested for Stela 20. Possibly this object may have been left behind at some intermediate stopping-place of the tribe on their migration southward from northern Peten (see plate 1 and fig. 64), and it doubtless antedates the first settlement in the Copan Valley.

¹ Lothrop found a similar sculpture, although with a second figure on the back of the first, the whole being very crudely executed in block-like outlines similar to the sculptures under discussion, at La Florida, 50 kilometers northeast of Copan, in 1916.

This first settlement appears to have been located at Group 9, and here for the next 200 years all the monuments were probably erected, and here may be said to have been the capital, the religious and administrative center of the region.

Judging from the provenance of the early monuments, it appears as not improbable that Group 9 was the only settlement in the valley during the Early Period, at least the only one which attained sufficient wealth and importance to have been able to execute and erect monuments. During this period the valley was doubtless put under cultivation from end to end, and reserves of wealth and experience accumulated which were to be utilized in the great expansion that took place at the beginning of the next period. Each lahuntun and katun as it passed was probably marked by the erection of a corresponding stela at Group 9, and monument by monument we may see reflected the increasing prosperity of the tribe. Perhaps as early as 9.7.0.0.0 the priests attempted to portray the human figure on the fronts of their stelæ (Stela 18), and before the end of the period, *i. e.*, after 9.9.0.0.0, the all-glyphic stela began to pass out of fashion.

We must believe that the rulers of the tribe during this period, whether hereditary or elective, civil, military, or ecclesiastic in character, were wise administrators, who occupied themselves in developing the resources of the surrounding region, in building and embellishing their capital, and in generally extending their influence and the cult of their tribal deities. Finally, by the end of the period, the tribe had become so powerful and wealthy that it was able to expand the sphere of its activities beyond Group 9 and to establish other important settlements throughout the valley.

THE MIDDLE PERIOD.

The Middle Period at Copan opens with a hiatus in the sequence of the monuments, followed by a tremendous outburst of sculptural activity all over the valley in 9.11.0.0.0, on which latter date no less than 7 different stelæ were erected at 6 different groups.

After Stela P in 9.9.10.0.0, a period of decentralization seems to have set in, during which the intensive occupation of the whole valley seems to have taken place, and 30 years later, almost as if by common consent, the current katun-ending, 9.11.0.0.0, was commemorated by the erection of stelæ at 6 different groups: Group 1 at the eastern end of the valley, 14 kilometers distant from Old Copan; Group 2 on the north bank of the Copan River, 8.5 kilometers distant; Group 3 on the summit of a hill on the eastern side of the valley, 4.5 kilometers distant; the group which was later to become the Main Structure, where two stelæ bearing this date were erected, 2 kilometers distant; Group 12 on the summit of a hill at the western end of the valley, 2.5 kilometers west of Old Copan, and Group 13 in a little side-valley entering the main valley from the north, 3.5 kilometers west of Old Copan. Groups 7, 11, 14, and 15 may have been founded at this same time, although no dated monuments have been found at any of them. (See plate 3.)

But this centrifugal force, which must have threatened to disrupt the tribe, and which certainly cost Group 9 its position of preëminence in the valley, appears to have been of short duration. Of the six different groups where the katun-ending 9.11.0.0.0 was commemorated by the erection of a stela, only *one* has any other inscribed monuments, and that is the group which later became the Main Structure.

In attempting to explain this condition, one point at least appears reasonably certain, namely, that these groups, with the exception of the Main Structure, did not continue to hold important positions in the valley, which is indicated by the fact that, with the single exception noted, no subsequent monuments were erected at any one of them.

Perhaps the best explanation of the facts observed is that after this decentralizing wave had reached its crest in 9.11.0.0.0 there was a reaction, during which the former tendency toward centralization developed during the 200 years Group 9 had been the only settlement of importance in the valley, reasserted itself, and as a result the Main Structure became the principal settlement in the valley and in the following century the next to largest city in the Old Empire, being second in size only to Tikal.

The next question confronting us is, when was the group at the Main Structure founded? And in seeking the answer to it, we must again turn to the evidence afforded by the dated monuments.

The earliest monument at the Main Structure, which is not obviously in a position indicating secondary usage, is Stela E; but, as we have already seen, neither Stela E nor Stela P can be regarded as *in situ* where now found, strictly speaking, both probably having been removed to the Main Structure from Group 9 long subsequent to their original erection at the latter site.

The next earliest monuments are Stelæ 2 and 3 in the Middle Court, which may or may not be in their original positions, and the earliest monument at the Main Structure surely *in situ* is Stela 1, also in the Middle Court. Let us next examine the dates and provenance of these three stelæ.

Stelæ 2 and 3 both date from 9.11.0.0.0, as already noted, and Stela 1 from 9.11.15.0.0, the provenance of all three, as just stated, being the same, *i. e.*, the Middle Court. The first is very doubtfully in its original position; the second probably so, because a cache of objects, though not in a stone-lined chamber, was found under its foundation-stone; and the third surely so, the chamber under its foundation-stone having been built at the same time as Mound 9.

It was suggested in Chapter III that Stelæ 10 and 12 at Groups 12 and 3 respectively, both of which were erected at approximately the same time as Stelæ 2 and 3,¹ may have had something to do in determining the location of a settlement at the Main Structure, possibly by defining some particular line of sight, which now cuts across the southern slope of the Acropolis.

We have seen how, under the influence of a strong decentralizing movement, possibly due to the normal expansion and growth of a people who had

¹ The only date on Stela 10 is only 100 days earlier than 9.11.0.0.0, *i. e.*, 9.10.19.13.0.

been living and prospering for 200 years in one place, the whole valley was occupied and a number of smaller settlements established in 9.11.0.0.0, among others possibly the Main Structure, since the earliest monuments possibly *in situ* there present this date. Certainly 15 years later a settlement had been made here, a temple built (Mound 9), and a stela erected (Stela 1).

The fact that the three earliest stelæ at the Main Structure which can possibly be regarded as *in situ* all occur within 75 meters of each other and in the same plaza, suggests that this is the earliest part of the Main Structure, and the fact that one of them was built in the foundations of Mound 9 suggests that Mound 9 probably is the oldest building now extant, in its original form at least, at the Main Structure.

The temple on its summit was excavated by Gordon in 1895 and was found to be devoid of sculptural decoration, in which respect it is unlike most of the other temples of the Acropolis group at the Main Structure, Nos. 11, 21a, 22, and 18 for example, and therefore presumably earlier.

The chief objection to the hypothesis that Mound 9 is the oldest building now extant at the Main Structure, and that Stelæ 2, 3, and 1 were the first stelæ erected there, is the possibility that the Acropolis could not have been built in the 120 years between 9.11.0.0.0 and 9.17.0.0.0, when it is known to have been completed. (See the dates of Temple 21a and the Reviewing-stand in the Western Court, pp. 318, 321.)

The cross-section of the Acropolis exposed by the river has a maximum height of 40 meters and shows five or six earlier plaza-levels, mostly in the lower half, and below the present floor-level of the Eastern Court. It has been argued¹ that to have built this vast artificial construction a long period of time was necessary, several centuries at the very least, but after a study of all the evidence available the writer has not reached this conclusion; on the contrary, he believes that the Acropolis could have been built, and in fact probably was built, in the 120 years between 9.11.0.0.0 and 9.17.0.0.0, when the Eastern and Western Courts were completed. In support of this view it may be pointed out that the construction of Mound 26, which is an integral part of the Acropolis, was apparently not started until 9.13.18.17.9, the date on the lowest step of the Hieroglyphic Stairway, that is, something less than 50 years before its completion, less than 60 years before the completion of Temple 11 nearby, and less than 75 years before the completion of the whole Acropolis.

It has been shown that the Great Plaza was not laid out until after 9.12.5.0.0 (Stela I) and was probably completed by 9.13.10.0.0 (Stela J), 25 years later; and, judging from the dates on the Acropolis itself, the completion of successive units of that construction is to be measured by decades rather than centuries.

Assuming for the moment that no temples stood on the river-plain here until after 9.11.0.0.0, we have Temple 9 being dedicated 15 years later

¹ Gordon, 1896, p. 10.

(9.11.15.0.0) and the foundations of Mound 26 being laid 42 years later (9.13.18.17.9). Doubtless we must also assume that during these 57 years other temples had been built east of the site of Mound 26, corresponding to the lower plaza-levels in the cross-section of the Acropolis exposed by the river.

Mound 26, the Hieroglyphic Stairway on its western side, Temple 26 on its summit, and Stela M at its western base, an undertaking involving a great outlay of labor, had been completed and were dedicated in 9.16.5.0.0, 45 years later. Meanwhile, work on the substructure on the south side of the Court of the Hieroglyphic Stairway was going forward, and 5 years later, in 9.16.10.0.0, Stela N was erected, and less than 3 years later, in 9.16.12.5.17, the very important Temple 11 was dedicated and another large section of the Acropolis completed.

Although we have no dates to guide us here, we may doubtless assume that toward the close of the Middle Period, *i.e.*, during the course of construction of Mound 26, the part of the Acropolis lying to its south was also changing shape, gradually being built higher, and reaching the next higher plaza-levels in the cross-section exposed by the river on the east side.

During the 8 years between 9.16.12.5.17 and 9.17.0.0.0, the Acropolis received its final additions. The whole southwestern corner marking the Western Court was probably filled in and dedicated in 9.17.0.0.0, as indicated by the date on the Reviewing-stand at the northern end of this court. At the same time the whole eastern side of the Acropolis was also raised to its final levels, Temples 21 and 22 being dedicated some time between 9.16.12.5.17 and 9.17.0.0.0, and Temple 21a on the latter date.

Judging from the rapidity with which these several parts of the Acropolis seem to have been successively completed, as indicated by the dates actually recorded upon integral members of this architectural complex, the writer believes it is probably safe to assume that the Acropolis was not commenced much, if any earlier than 9.11.0.0.0 and possibly not before 9.13.18.17.9, and was completed in 9.17.0.0.0, that is to say, it was probably something between 60 and 120 years in building.

Returning now to the general history of Copan during the Middle Period, we may probably assume that the Main Structure was founded in 9.11.0.0.0, or at least became the most important settlement in the valley from that date on, soon eclipsing Group 9, which had hitherto been the capital of the region.

Moreover, of the other five groups founded at the same time, not one has another monument of any date, and it seems probable that, at least in so far as these particular groups were concerned, all the architectural and sculptural efforts of the tribe were centered on the construction and embellishment of buildings at the Main Structure. This appears clearly in the second column of Appendix IX, where, after 9.11.0.0.0, it will be seen that the only settlement in the valley outside of the Main Structure at which monuments were erected during the Middle Period was Group 8, midway between the Main Struc-

ture and Group 9. In short, the extensive occupation of the valley had been effected, and now for the next century and a half the principal efforts of the tribe were devoted to beautifying and enlarging their new capital.

Some time during the first 15 years, work on Temple (Mound) 9 was commenced, and in 9.11.15.0.0 both this temple and Stela 1 were dedicated, the former facing south, where, during the next century, the Acropolis was slowly to take shape. (See plate 6.)

The next hotun-ending, 9.12.0.0.0, also a katun-ending as well, was commemorated by the erection of two round altars, both presenting Initial Series, being the first examples of altars which may have been used independently of stelæ yet encountered, one associated with Stela 1 and Temple 9, and the other at a new settlement, Group 8, which seems to have been founded about this time.

The next hotun-ending, 9.12.5.0.0, was marked by the erection of Stela I, an extremely important monument, since its location probably determines the date of construction of the Great Plaza.

Stela I stands in a niche on the terrace on the east side of the Great Plaza in such a way as to indicate that it was erected before this terrace was built, that is to say, this terrace could not have been built until after 9.12.5.0.0 (see plate 6). Probably shortly after this date the Great Plaza was laid out in its present form, and possibly completed or at least well under way before the erection of Stela J, 25 years later.

The next hotun-ending was commemorated by the erection of Stela 6 at Group 8, and then, with 9.12.15.0.0 missing in the monumental sequence, the next, 9.13.0.0.0, also a katun-ending as well, was commemorated by the dedication of two rectangular table-like altars, H' and I'. These are now found in the Western Court, but the writer supposes them to have been brought hither from some other part of the Main Structure, assuming the Western Court not to have been built until 80 years later.

The next hotun is not represented by any known monument, but the next, 9.13.10.0.0, is recorded on Stela J at the southeast corner of Mound 3, one of the complex of terraces surrounding the Great Plaza. (See plate 6.)

The last monument of the Middle Period is Stela 5 at Group 8, dating either from 9.13.15.0.0 or 9.14.0.0.0; and then the closing 20 years of the period, 9.14.0.0.0 to 9.15.0.0.0, are represented by no monuments, being a complete blank, so far as the inscriptions are concerned.

We have seen, however, that this was an epoch of great building activity at Copan. The construction of Mound 26, and probably of Mound 11 and the whole eastern side of the Acropolis, had just been started, and was absorbing the energies of all the artisan class. At the beginning of the Great Period, *i. e.*, in 9.15.0.0.0 and 9.15.5.0.0, as will appear presently, time was taken to erect three stelæ and an altar, but after 9.15.5.0.0 there is another 20-year hiatus in the monumental sequence, unless we except the

doubtfully dated and unimportant inscribed steps on the southern side of Mound 2. Work was doubtless being pushed forward on the whole Acropolis complex from 9.14.0.0.0 to 9.16.5.0.0, at which latter date we have seen Mound 26, Temple 26, the Hieroglyphic Stairway, and Stela M were all completed and dedicated, and during the next 15 years the series of magnificent temples surrounding the Eastern and Western Courts, 11, 16, 18, 19, 21, 21a, and 22, were erected, which amply accounts for the almost complete absence of inscriptions dating from these 45 years, elsewhere so productive.

Another factor which may have tended to cut down the output of inscriptions at Copan during the closing decade of the Middle Period is the possible absorption of her resources in the colonization of the neighboring city of Quirigua, probably by emigrants from Copan, in 9.14.13.4.17, and additions thereto in 9.15.6.14.6, the latter date being actually recorded at both sites.

All lines of evidence point to this fact. In the first place, Quirigua is not more than 60 kilometers north of Copan in an air-line, but is several hundred kilometers south of the nearest large Maya city to the north. Again, the art and architecture of the two cities are practically identical; indeed, the art of Copan and Quirigua shows closer relationship in technique as well as in subject-matter than does that of any other two cities in the Old Empire. Finally, the dates at Quirigua indicate that it was founded in 9.14.13.4.17, a fact substantiated in a general way by the art there, which shows no archaistic features whatsoever, but even on the earliest monuments is already perfected and in full flower.

The writer believes the earliest monument at Quirigua is Altar M, dating either from 9.15.0.0.0 or 9.15.3.2.0, some 7 or 10 years after the city was founded. Even assuming that the colonists came fully equipped from Copan, it would probably have taken them at least that time to have felled the forest, put the land under cultivation, laid out their city, located the quarries, taken out and transported the stone, and finally to have carved the first monument. Indeed, the first hotun-ending commemorated by the erection of a stela was 9.15.15.0.0, 15 years later, although after this latter date not a single hotun-ending is omitted in the monumental sequence for the next 65 years.

It appears as not unlikely that the probable foundation of Quirigua by colonists from Copan in or about 9.14.13.4.17 withdrew from the mother-city a number of her skilled artisans, especially stone-workers, masons, and sculptors, and this, coupled with the fact that the work on the Acropolis was also drawing heavily on the resources of the tribe, doubtless explains the absence of inscriptions from the closing katun of the Middle Period, and with few exceptions from the opening katun of the Great Period.

The century from 9.10.0.0.0 to 9.15.0.0.0 was an important one for this southern branch of the Maya. During the previous period the tribe had grown beyond the capacity of its original capital at Group 9, and during the

first katun of the Middle Period established settlements throughout the valley. After 9.11.0.0.0 the capital was shifted from Group 9 to the Main Structure, *i. e.*, nearer the middle of the valley, and an extensive building program inaugurated there. Finally, toward the close of the period, the neighboring city of Quirigua was founded, probably by colonists from Copan, at which time the provincial phase of the tribe's history may be said to have come to an end, and from this time on for the next 70 years, *i. e.*, the first half of the Great Period, Copan was the most brilliant city architecturally and sculpturally, if not indeed the most powerful, in the Old Empire.

THE GREAT PERIOD.

The Great Period at Copan opened with the erection of two handsome stelæ at the Main Structure and an altar at Group 9, the last being the first monument to be set up at the former capital for more than a century, and the next hotun-ending, 9.15.5.0.0, was commemorated by the erection of another imposing stela in the Great Plaza, especially interesting as being the earliest example known of the exclusive use of full-figure glyphs.

We have already seen how, before the erection of these several monuments, the scene of sculptural and architectural activity had shifted to the Acropolis, and after the erection of Stela D for the next 20 years work went steadily forward on different parts of that great artificial substructure.

In 9.16.5.0.0, as we have already seen, a large unit of this construction was completed—Mound 26, Temple 26, Stela M, and the Hieroglyphic Stairway—the last being by far the largest text in the Corpus Inscriptionum Mayarum. A hotun later, Stela N was dedicated, the last stela to be used for such a purpose at Copan, and less than two and a half years later the most important date in the Great Period at Copan, 9.16.12.4.17, was recorded as the dedicatory date of Temple 11 and Altars V, R, and U.

Unfortunately, the nature of the event which rendered this particular date of such importance in the annals of Copan is unknown. It is different from the great majority of the dates heretofore encountered, being at the end of no particular division in the Maya chronological system, such as a tun, hotun, lahuntun, or katun, and for that reason probably is to be interpreted as referring to the occurrence of some actual historical event or astronomical phenomenon, although which we are unable to say.

On the evidence afforded by the glyphs thus far deciphered in the inscriptions, which are practically limited to the characters used in recording Initial, Secondary, and Supplementary Series, Period Ending, and Calendar Round dates, we would be justified in assuming that it was some important astronomical phenomenon which had taken place in 9.16.12.5.17; but, judged by the evidence as a whole, and particularly the three factors enumerated at the top of the next page, it seems necessary to admit that this event may possibly have been of an historical nature, such as the death or accession of a ruler, a notable conquest, or even the dedication of an important building devoted to religious uses, like Temple 11 where it was recorded.

1. Many of the Aztec codices, which were doubtless patterned after Maya models originally, are wholly historical in character.
2. The Books of Chilan Balam, actual Maya redactions in the Spanish script of native Maya originals now lost, contain chronicles which are obviously copies of historical records in the Maya hieroglyphic writing.
3. The direct statements of the Spanish chroniclers of the sixteenth and seventeenth centuries to the effect that the Maya had the practice of recording their history in their books. (See pp. 42, 43.)

Whatever may have been the nature of this event, whether historical or astronomical, it was of sufficient importance that, 20 years later, its first katun anniversary, 9.17.12.5.17, although not a tun, hotun, lahuntun, or katun-ending, was commemorated by the erection of two monuments (Altar T and Stela 8) and possibly by a temple or hieroglyphic stairway (Fragment E').

After Stela N the hotun-endings at Copan appear to have been marked by larger constructions, such as Temple 21a or the Reviewing-stand in the Western Court, or by altars, the subsequent stelæ apparently being devoted to the record of tonalamatls, Calendar Rounds or other unusual counts.

But the Acropolis was now nearing completion; as we have already seen, both the Eastern and Western Courts being finished in 9.17.0.0.0, and the last monument in the latter being erected either on the following hotun-ending, 9.17.5.0.0, or 15 years later, 9.18.0.0.0 (?).¹ Moreover, the occupation of the city itself was also now drawing to an end. In the tonalamatl from 9.17.12.0.0 to 9.17.12.13.0 the last five stelæ at Copan were erected, four in the Great Plaza at the Main Structure and the fifth a kilometer west of Old Copan at Group 10.

This particular tonalamatl was of unusual importance, as has already been pointed out, since within its space fell the first katun anniversary of the important date 9.16.12.5.17. Two stelæ, C and H, were dedicated at the beginning of this tonalamatl, a third, Stela 8, commemorates the first katun anniversary of 9.16.12.5.17, and two others, F and 4, being dedicated at its end in 9.17.12.13.0, the latter being not only the latest but also the most beautiful of all the Copan stelæ.

The three latest dates at Copan are the hotun-endings, 9.18.0.0.0, 9.18.5.0.0, and 9.18.10.0.0, recorded on Altars W, G₂, and G₁ respectively, after which there are no later monuments, the inscriptions cease, the record becomes a blank, and the curtain falls for the last time on the scene of Maya activity in the valley, and indeed in the whole surrounding country.

Doubtless the city was occupied for a few years longer, but some time during the next 20 years and before the beginning of Cycle 10 both Copan and Quirigua, and indeed most of the other Old Empire cities, were abandoned, never to be reoccupied, and the Maya again set forth on another long exodus which finally brought them to other lands, other destinies, and five centuries later to their renaissance.

¹ The provenance of the monument presenting this date, Altar W, is doubtful. (See page 364).

The history of Copan during the Great Period is the history of the Main Structure, and here, in altar, stela, stairway, temple, palace, court, and plaza, we may read the record of the tribe's growing power and wealth. Her increasing influence outside of the valley has already been noted, as, for example, the colonization of Quirigua by emigrants from Copan at the close of the Middle Period. But during the Great Period more distant colonies were established, at Paraiso, Rio Amarillo, and even on the other side of the divide in the Chamelecon Valley at Los Higos. (See figure 57.) Fortunately, at the last-mentioned site the lahuntun-ending 9.17.10.0.0 is recorded, so that we know at least one of her colonies besides Quirigua was occupied at the height of the Great Period; in fact, this latter date is only 2 years earlier than the last group of stelæ in the Great Plaza.

Her sphere of esthetic influence we may imagine to have extended far beyond this cluster of southern Maya cities, of which she was easily the leader, and to have been felt far to the south, southeast, east, and northeast, where peoples of much lower cultures eagerly copied, as best such outer barbarians might, her art, sculpture, and ceramics, decorative motives of the latter being traceable as far to the southeast as Costa Rica.

In the northwest, *i. e.*, the Peten region, she must have come in contact, if not indeed in open conflict, with some of the great northern cities, Tikal, Nakum, or Naranjo, for example, and in this direction her sphere of actual dominion probably did not extend beyond the Golfo Dulce or the Sarstoon River. (See plate 1 and fig. 57.)

In size Copan was second only to Tikal, and in learning and art she had no peers. The wealth of her inscriptions, probably comprising as high as 40 per cent. of the Corpus Inscriptionum Mayarum, has already been noted. In sculpture she enjoyed a similar preëminence not only in mass of material but also in superiority of workmanship, technical processes, and the like. In the extent of her architecture alone she may have fallen somewhat behind her great northern rival.

Judged as a whole, however, Copan may be aptly called "the Athens of the New World," a title the writer has been wont to bestow upon her in drawing analogies from the ancient cities of the Old World; and in closing this summary of her history it may be claimed with perfect assurance that no other city of aboriginal America ever attained so high a level of cultural achievement.

The curve of civilization at Copan, based upon the prevalency of the monuments, is shown graphically in figure 68, the data upon which it is based appearing in Appendix IX. The abscissæ of the curve are the successive hotuns of the Long Count shown by the vertical lines, every fourth one of which, corresponding to a katun-ending as well, being heavier. The dates of these several hotuns appear above, only those corresponding to the second and fourth ones, *i. e.*, the lahuntuns and katuns respectively, being written out. The brackets above indicate the three periods of the Old Empire. The ordinates of the curve are the *number of times* any given

hotun occurs as the contemporaneous date of different monuments, all contemporaneous dates not hotun-endings being plotted as at the ends of their corresponding hotuns. Thus, for example, all the monuments which date from 9.16.12.5.17 have been plotted as dating from 9.16.15.0.0, the current hotun-ending. In the Early and Middle Periods, when practically all of the monuments were erected at hotun-endings, this has no appreciable effect on the curve, but after 9.16.10.0.0, when this practice began to fall into disuse, it introduces certain minor variations between hotun-endings not shown in figure 68. The black dots on the curve indicate the number of

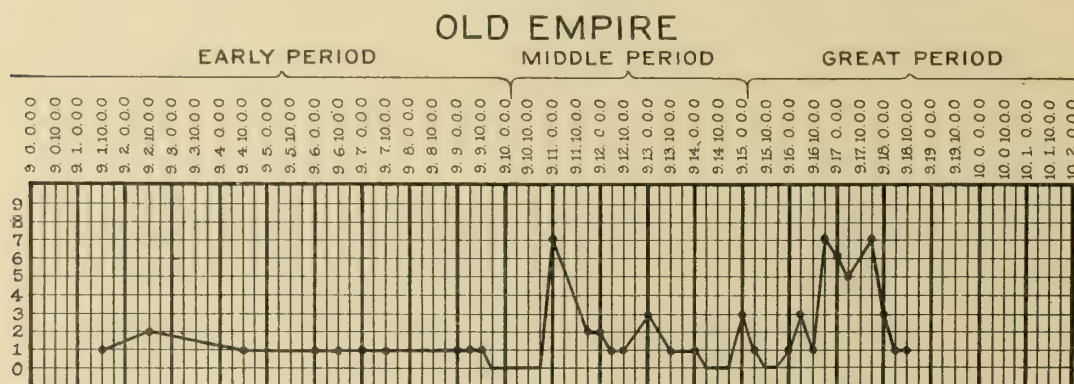


FIG. 68.—Diagram showing the chronologic distribution and frequency of the dated monuments at Copan.

monuments assigned to the corresponding hotun-ending; when the curve passes through a vertical line without such a dot, it indicates that no monuments have yet been found which date from that particular hotun. The outstanding features of the curve are:

1. The practically stationary position at the first ordinate above the base-line (0) throughout the Early Period, with stations only at second and fourth hotun-endings until 9.9.10.0.0 is reached. This may be interpreted as indicating that throughout the Early Period the lahuntun and katun-endings were for the most part commemorated by the erection of but a single monument.¹

2. The first long minimum, from 9.9.10.0.0 to 9.11.0.0.0. This return of the curve to the base-line for 25 years, *i. e.*, until the hotun-ending in 9.11.0.0.0, may be interpreted as indicating that during this period the extensive occupation of the valley was under way and new groups were being established, after the long period of quiescence at Group 9, during which the tribe was slowly gaining in strength.

3. The sudden upward swing of the curve in 9.11.0.0.0, to the first maximum. This may be interpreted as indicating that the extensive occupation of the valley after the close of the Early Period and during the first katun of the Middle Period had been completed by this date.

4. The sudden drop of the curve to the second ordinate above the base-line after 9.11.0.0.0 and its continuation there with but minor variations until the last

¹ Stela 15 and Altar Q', Stela 16 and Altar Y, and Stela 17 and Altar X have been plotted in figure 68 as three monuments instead of six, each pair being regarded as a single monument like Stela E and its altar. In all probability Altar Q' was formerly associated with Stela 15, since both record the same date, and the other two associations have been suggested as not improbable. Altars J', K', L', M', P', and A' and Stelæ 22 and 21 have been omitted from figure 68 as being of too uncertain date to plot properly, and the inscribed peccary skull from Tomb 1 (see pages 379-381) on the grounds that it is not a monument and hence does not properly belong to the monumental sequence.

katun of the Middle Period. This may be interpreted as indicating that the tribe, while unable to maintain the high level of seven monuments for each hotun-ending, was able to erect two on most of these occasions, showing a tendency, however, to drop back to second and fourth hotun-endings, as in the Early Period. A fact not disclosed by figure 68 is that most of the monuments after 9.11.0.0.0 were erected at the Main Structure, which from this time on became the capital of the region.

5. The second long minimum from 9.14.0.0.0 to 9.16.5.0.0 (not very apparent in fig. 68). This second long return of the curve to the base-line for 45 years, *i. e.*, until the hotun-ending in 9.16.5.0.0, save for the erection of four monuments only, may be interpreted as indicating the period during which the Acropolis was under construction.

6. The several and frequent maxima after 9.16.5.0.0, until the second and third high points of the curve are reached in 9.16.15.0.0 and 9.17.15.0.0 respectively. This may be interpreted as indicating that the height of sculptural and architectural activity was reached at Copan, as everywhere else, in the eighteenth katun, *i. e.*, from 9.17.0.0.0 to 9.18.0.0.0.

7. The sudden drop to the third ordinate in 9.18.0.0.0 and to the first ordinate in 9.18.5.0.0 and in 9.18.10.0.0, and its final return to the base-line before 9.18.15.0.0. This may be interpreted as indicating a swift loss of power before 9.18.0.0.0, though no loss of technical proficiency, and the final abandonment of the city in the following katun before 9.18.15.0.0.

OTHER CITIES OF THE OLD EMPIRE.

Before closing this study of the Copan inscriptions, it appears advisable to describe briefly the dates of the other principal cities of the Old Empire, so that the chronology of Copan may be compared with that of her contemporaries.

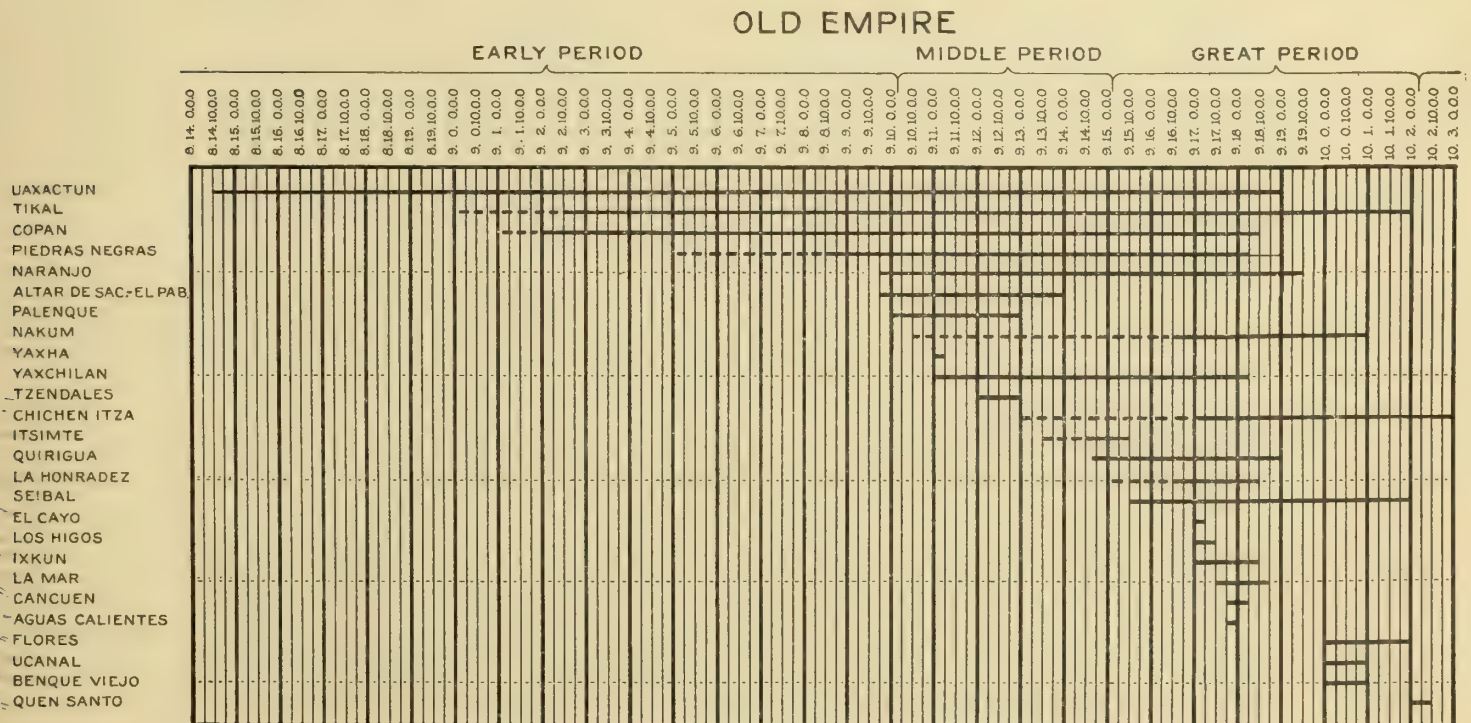


FIG. 69.—Diagram showing periods of occupation of the principal Old Empire cities.

These chronological data are shown graphically in figure 69, where the vertical lines indicate the successive hotun-endings of Maya chronology from 8.14.0.0.0 to 10.3.0.0.0, every fourth line, corresponding to a katun-ending, being heavier. As in the case of figure 68, the dates of these several hotuns appear above, only those of the second and fourth hotuns, the lahuntuns, and katuns respectively being written out. The brackets above indicate the corresponding periods of the Old Empire, that at the extreme right, beginning after 10.2.0.0.0, belonging to the second or Transitional Period of the New Empire. (See Appendix II, p.505.)

The names of the different cities of the Old Empire at which dates have been deciphered appear in the column at the left, and their corresponding periods of occupation, based upon the earliest and latest contemporaneous dates at each, are shown by the heavy black horizontal lines running across the figure. In cases where the earliest dates are doubtfully deciphered, as, for example, at Copan (Stela 20), La Honradez (Stelæ 2, 3, 6, 8, and 9), and Itzimte (Altars 1 and 2), or where the earlier dates have not been deciphered at all, and the earlier character of the monument or monuments rests on the stylistic criteria, as, for example, at Tikal (Stelæ 4, 7, 8, and 9), heavy broken lines carry back the solid lines to the supposed starting-points.

The real difficulty in presenting these data is not in the horizontal arrangement, since the earliest and latest dates are fairly certain at most of the cities, but in the vertical arrangement, that is, the order in which the cities should follow each other, whether chronologic or geographic. This matter is further complicated by the fact that eight of the cities in figure 69 have only a single date deciphered at each—Los Higos, Aguas Calientes, Tzendales, El Cayo, Yaxha,¹ Ucanal, Benque Viejo, and Chichen Itza;² and there are six others, which have an interval of a katun or less between their earliest and latest dates—Quen Santo, Cancuen, La Mar, Itzimte, Ixkun, and Flores.

For the purposes of this investigation it has seemed best to follow the chronological arrangement in figure 69, because it shows more clearly than the geographic arrangement the *growth and expansion* of the Maya civilization during the Old Empire; it fails, however, to bring out the *progressive abandonment* of the cities, beginning in the west and south and gradually drawing into the northeast and north until the only Old Empire cities which were occupied at the beginning of Cycle 10 were Flores, Tikal, Nakum, Ucanal, and Benque Viejo in northeastern Peten and Seibal in central Peten.

In using figure 69 it should be remembered that, as plotted, any monument recording a hotun-ending is assumed to have covered that entire hotun; similarly, monuments recording lahuntun and katun-endings are assumed to have covered the corresponding lahuntuns and katuns respectively; that

¹ There are other monuments at Yaxha, Ucanal, and Benque Viejo, but they are in such bad condition that the writer has been unable to date them approximately, even upon stylistic grounds. Thus, for example, there are certainly much later monuments at Yaxha than 9.11.5.0.0, which itself is a doubtful reading, and there are surely earlier monuments at Ucanal than 10.1.0.0.0; in fact, the monument recording this latter date (Stela 3) is probably the latest at this site.

² There are also other dates at Chichen Itza, but they are later and fall in the New Empire.

is to say, if a hotun-marker, as, for example, Stela 6 at Yaxha, records the hotun-ending 9.11.5.0.0, the heavy black line corresponding to Yaxha really begins a hotun earlier, *i. e.*, at 9.11.0.0.0, because such monuments, although actually erected on the hotun-endings, in reality stood for the entire period back to the next preceding hotun-ending.

Again, if the monument is a lahuntun-marker, that is, when no first or third hotun-markers have been found at the site, as, for example, Stela 1 at Los Higos, 9.17.10.0.0, the heavy black line corresponding to Los Higos is carried back to 9.17.0.0.0, because the lahuntun ending in 9.17.10.0.0 began the day following 9.17.0.0.0.

Finally, if the monument is a katun-marker, that is, when no first, second, or third hotun-markers have been found at the site, as, for example, Stela 3 at Ucanal, 10.1.0.0.0, the heavy black line corresponding to Ucanal is carried back to 10.0.0.0.0, since the katun ending in 10.1.0.0.0 began the day after 10.0.0.0.0.

It follows, then, that the heavy black lines in figure 69 *begin* a hotun, lahuntun, or katun *earlier*, as the case may be, than the earliest contemporaneous date at each site, a necessary condition from the Maya method of reckoning time in terms of elapsed units; and in using figure 69 *this point should be constantly borne in mind*. Practically, however, this makes little difference in the *relative lengths* of the several periods of occupation, since all the cities are treated in the same way, and the maximum error possible when the earliest date is a katun-ending is only 15 years, and when it is a lahuntun-ending only 5 years. When it is a hotun-ending there is no error at all. This possible source of error arises from the fact that when the earliest date is a katun-ending, the writer has had to assume in figure 69 that such a monument stood for the whole katun, whose ending only it records, whereas it may only have stood for a lahuntun or a first or third hotun, giving rise to errors of 10, 15, and 5 years respectively, depending upon the practice at the site in question. And in the case of a lahuntun-ending, it has been assumed that such a monument stood for the whole lahuntun, whereas it may only have stood for a hotun, giving an error of 5 years. These are negligible quantities, however, when it is taken into consideration that all the cities in figure 69, in the very nature of the case, must have been occupied some little time, both before and after their earliest and latest contemporaneous dates respectively, and these possible minor errors in no way invalidate the comparative value of the data given.

A few exceptions should be noted. In the case of Quirigua the earliest date is really 9.14.13.4.17 as plotted, and not a hotun, lahuntun, or katun later, as usually the case in this figure. This date, however, is not a hotun, lahuntun, or katun-ending in the Long Count, and probably refers to a definite historic or astronomic event.

In the case of Chichen Itza, although it has only one date in the Old Empire, namely, 10.2.10.0.0, its occupation has been extended back surely to 9.17.0.0.0 on the basis of the chronicle from the Book of Chilán Balam of

Mani, and doubtfully to 9.13.0.0.0 on the basis of the chronicle in the Tizimin manuscript.

One other point in connection with figure 69 remains to be discussed. The small stela found by Spinden and the writer at El Pabellón on the west bank of the Usumacinta River in 1914, bearing the early date 9.10.0.0.0, has been regarded as belonging to the same settlement as Altar de Sacrificios on the opposite side of the river a kilometer above. This is an early date, and since there are two other monuments at Altar de Sacrificios not more than 10 years later, as well as a considerable number of mounds, the latter not being found at El Pabellón, and since it is unlikely that at this early date there would have been two different settlements so close together, El Pabellón and Altar de Sacrificios have been grouped together as one settlement in figure 69.

As already stated, figure 69 shows that Uaxactun is the oldest Maya city known (8.14.10.13.15), and in addition it would appear to have been occupied longer than any other, 492 years. Tikal comes next in length of occupation, 381 years (9.2.13.0.0); and if it is assumed that the earlier stelæ there (Stelæ 8 and 9 for example) carry back the monumental sequence at least 52 years earlier, *i. e.*, to the beginning of Cycle 9, as the writer believes, its period of occupation is 433 years. But, as we have already seen, these two cities are not more than 25 or 30 kilometers apart, and were doubtless inhabited by people of the same tribe, and were possibly under one ruler. If so, we may group them together in this comparison, and extend the occupation of Uaxactun-Tikal to 541 years, *i. e.*, from 8.14.10.13.15 to 10.2.0.0.0.

Copan, although at least a century and probably a century and a half later than Uaxactun-Tikal, comes next both in antiquity (9.2.10.0.0) and in length of occupation, surely 325 years, or 345 years if the date suggested for of Stela 20 is accepted as correct (9.1.10.0.0).

For the next 120 to 140 years Copan and Uaxactun-Tikal appear to have been the only centers of the Maya people; indeed, only three other cities, so far as known, were founded in the Early Period—Piedras Negras in 9.8.15.0.0¹ and Naranjo and Altar de Sacrificios-El Pabellón in 9.10.0.0.0, just at the close of the period.

A survey of the Maya culture area at the end of the Early Period shows only five centers of population in existence, although the distribution of these is such as to indicate that even at this early date the general region of the Old Empire had been fairly well defined, Copan being on the southeastern frontier, Uaxactun-Tikal and the newly founded Naranjo in the northern part, and Piedras Negras and Altar de Sacrificios-El Pabellón in the western part (see plate 1); and we may doubtless regard these cities, with the exception possibly of the last, as capitals in their respective sections, centers from which the occupation of the surrounding regions was effected.

¹ There is a possibility that the earliest date at Piedras Negras may be 60 or 70 years earlier than this, Stela 29 possibly dating from as early as 9.5.15.0.0 or 9.5.5.0.0. This monument is fragmentary and its date has not been exactly deciphered as yet.

During the Middle Period the occupation of the southern Maya field went steadily forward; Palenque (9.10.10.0.0), Yaxchilan (9.11.3.10.13), and Tzendales (9.13.0.0.0) were founded in the west; Yaxha (9.11.5.0.0) in the north; Itsimte (9.14.0.0.0) (?) in the center, and Quirigua (9.14.13.4.17) in the south; and by the end of the period almost all the larger cities had probably been founded, except perhaps Seibal, which, on the basis of its monuments, appears to have been the last big city established in the south.

Even Nakum, the earliest sure date at which is 9.17.0.0.0, was almost certainly founded as early as the Middle Period. This is a very large site belonging to Class 2 in the writer's classification of the Old Empire cities (see p. 441), and in addition to its 3 sculptured stelæ has 12 plain ones.¹ Perhaps, as suggested for Tikal, the hotun-endings at Nakum were marked by plain stelæ which were painted, thus carrying the monumental sequence back 3 katuns before 9.17.0.0.0 and into the Middle Period. Tozzer's map² shows that the city was extensive, and the number of temples there indicates a date of foundation considerably prior to 9.17.0.0.0. In figure 69, on the assumption that the 12 plain stelæ were either lahuntun or katun-markers like the carved ones, and that they marked the 12 katun and lahuntun-endings previous to 9.17.0.0.0, a possible foundation date of 9.11.0.0.0 is suggested for Nakum; or 9.14.0.0.0 if they marked the lahuntuns and katuns prior to 10.1.0.0.0, the latest date known there.

One other city of the Middle Period requires some further comment, namely, Palenque. This important site, perhaps better known than any other center of the Old Empire, with the possible exception of Copan, is the only one where the chronology and art criteria are apparently contradictory. Spinden maintains that on the basis of the architectural remains, as well as the stylistic criteria, particularly that presented by the stucco-work, Palenque is very late, in all probability being occupied after 9.18.0.0.0.³ On the other hand, the latest apparently contemporaneous date yet found there is 9.13.0.0.0, on the tablets in the Temples of the Inscription, and the Foliated Cross, and on the stela in front of the Temple of the Cross; and, so far as the chronologic side is concerned, the evidence is indisputable that the tablets in these two temples were dedicated in 9.13.0.0.0, although the possibility remains that originally they may have been parts of earlier buildings than those in which they are now found.

Spinden believes the stucco-work in particular is late, *i.e.*, after 9.18.0.0.0. It is especially unfortunate, therefore, that the only two Initial Series in stucco known at Palenque, one on the left pier of the façade of the Temple of the Sun and the other on the back wall of the outer chamber of the Temple of the Beau-relief, should both be almost entirely destroyed and impossible of decipherment.

The writer believes it is possible, even probable, that Palenque may have been occupied down to 9.18.0.0.0 or thereabouts, though hardly any

¹ Tozzer, 1913, pp. 162, 163.

² *Ibid.*, plates 32 and 33.

³ Spinden, 1917c, p. 177.

later. The latest date in the whole western part of the southern Maya field is 9.18.5.0.0 on Stela 12 at Piedras Negras, and about this time, on the evidence of the dates at least, it is necessary to postulate that the whole western region, including Palenque, was abandoned.

One other event of the Middle Period deserves especial mention because of the tremendous influence it was to exert a century and a half later. Some time during the closing katun of the Middle Period Chichen Itza was discovered, thus opening up to the Maya a vast new territory to the north, devoid of previous inhabitants¹ and admirably adapted to their peculiar type of civilization.

With the beginning of the Great Period in 9.15.0.0.0 the horizon of Maya history broadens widely, and in the next century twice as many cities, in all parts of the southern Maya region, were founded as in the previous four centuries. By this time the Maya were a rich and powerful people and the establishment of cities and the erection of temples and monuments had become, from the technical side at least, an easy matter, and the curve of civilization and cultural attainment surged upward. (See also figs. 68 and 70.)

The first city to be founded in the Great Period, based on the monumental record, was either Seibal, 9.16.0.0.0, in the rich valley of the Pasión River in southern Peten, or La Honradez, in the extreme northeastern corner of Peten, possibly a little earlier. The earliest surely deciphered date at the latter is 9.17.0.0.0, but there are several other monuments there which on stylistic grounds are still earlier.

After 9.17.0.0.0 the new sites follow each other in quick succession, El Cayo in 9.17.5.0.0 (?), Los Higos and Ixkun in 9.17.10.0.0, La Mar in 9.17.15.0.0, and Cancuen and Aguas Calientes in 9.18.0.0.0, when the zenith appears to have been reached, more monuments having been found which record this last hotun-ending than any other during the Old Empire. (See Appendix VIII.)

After 9.18.0.0.0 no cities appear to have been founded until the last group, Flores, Ucanal, and Benque Viejo in 10.1.0.0.0; indeed, there is a break in the monumental sequence of the Old Empire after 9.19.10.0.0, not a single monument having been discovered which dates from the 30 years between 9.19.10.0.0 and 10.1.0.0.0.²

¹ Mercer (1896, pp. 162-167), in an excellent study of the caves of Yucatan, during the course of which 29 were examined and 10 excavated, reaches the firm conclusion that Yucatan had never had an earlier occupation than that of the Maya: "But results more important than these had rewarded our close examination of the position and contents of the human rubbish heap everywhere present in the caves. Though this layer was the only culture-layer our digging had fairly proved at Oxkintok, Loltun, and Sabaka, and though we had often failed to reach rock bottom at other caverns, there was nowhere ground for supposing that deeper digging or blasting would have upset our inference. An earlier people visiting Yucatan under its present topographical conditions must needs have left their trace in the caves, and because the undisturbed earth beneath the culture-layer discovered always failed to show trace of any deeper, older, or more primitive human visitor, the conclusion was that no such earlier people had seen the region while its stony hills, its torrid plain, and its damp caves were as they now are."

² It is a curious fact that, as important as the date 10.0.0.0.0 must have been to the Maya priests, the end of the cycle during which they attained such cultural brilliance, not one contemporaneous monument has been found dating therefrom.

These last three cities could not have been occupied very long, since the last date recorded anywhere in the southern area, 10.2.0.0.0, is only 20 years later than their earliest date, and doubtless even at the time of their foundation the movement which was emptying the Old Empire region of its inhabitants was already nearing its end. After 10.1.0.0.0 no more new sites were founded, and soon after 10.2.0.0.0 the few that had survived the general exodus up to this time were abandoned and the Old Empire was at an end.

Much of the data upon which the foregoing conclusions are based are, of course, not only incomplete, but also of doubtful quality. Thus, for example, there are two important sections of the Old Empire area which have yet to be explored—the extreme northern part of Peten along the Mexican boundary and the western bank of the Usumacinta River from Tenosique southeast to Salinas de los Nueve Cerros and thence back to the base of the Cordillera, the latter comprising the northeastern quarter of the State of Chiapas, Mexico.

The writer confidently believes a thorough exploration of these two densely forested and, in most parts, uninhabited regions will result in the location of new Maya cities and the discovery of new hieroglyphic texts, although it appears highly improbable that another city as large either as Copan or Tikal can still be hidden in either, or even one as large as the cities of Class 2 on page 441, since notice of such a site at one time or another would almost certainly have been brought out by some mahogany-cutter, chicle-bleeder, or even by Lacandon Indians who roam these forests.

Again, it is obviously hazardous to assume that the earliest deciphered monument at a site is at the same time also the earliest one actually erected there, and similarly, that the latest deciphered monument is also the latest one which was erected there; and doubtless future discoveries will change some of the minor aspects of both figures 69 and 70. But the writer believes that in both these cases, *i. e.*, the discovery of new texts, as well as the future dating of known undeciphered ones, such new data will not affect the general features of these figures, and that the broad outlines of Old Empire history may safely be accepted as laid down here.

Another objection to the data upon which the above conclusions are based is that the *sculptured* monuments are not always an exact criterion as to the lengths of the periods of occupation, the most striking example of this kind being at Nakum, where only 12 of its 15 stelæ, and these all late, are sculptured. This objection is perfectly valid, but the answer to it is that in the very few cases where it applies there are also found plain stelæ which may doubtless be assumed to have taken the place of the sculptured stelæ as the period-markers at such sites.

Weighing all the evidence, the well-nigh universal custom of the Maya during the Old Empire to erect their monuments, and in some cases their temples as well, at the ends of even hotuns in the Long Count, the writer believes most of the data in figures 69 and 70 will be validated rather than

controverted by such future discoveries, always admitting that new texts will undoubtedly be found from time to time which will introduce minor variations.

The classification of the Old Empire cities into four groups, as given on page 441, based upon their size, monumental and architectural remains, and varying degrees of importance, is perhaps hazardous, since surveyed maps are lacking for all of them save only Tikal, Copan, Palenque, Nakum, and Quirigua. It is offered here, however, only by way of suggestion in answer to the oft-repeated question, what was the relative importance of the different cities of the Old Empire; and it should be noted in using it that save for Classes 1 and 4, where the classification is fairly obvious, the assignments suggested are only tentative and open to revision any time additional data are available.

The real difficulty in any such a classification is the proper distribution of the cities in Classes 2 and 3, or indeed whether it would not be preferable to group these cities together in one class. The principal objection to the latter solution is that it involves the grouping together of such important sites as Yaxchilan and Nakum with such relatively unimportant sites as Yaxha and Ixkun.

The problem is further complicated by the fact that, architecturally considered, Palenque, Yaxchilan, and Nakum are very important, while their monumental remains, especially those of the first and last, are relatively insignificant; whereas at Piedras Negras, Naranjo, and Quirigua we have the opposite condition, namely, important monumental sequences but relatively insignificant architectural remains. The only escape from this latter dilemma, since we do not know which the ancient Maya esteemed the more—a handsome series of stelæ or an imposing assemblage of temples—would appear to be to give each an equal value and group them all together. Although this makes Class 2 as large as Class 3, its six cities are more nearly of a size, while at the same time the six cities of Class 3 all have about the same number of monuments.

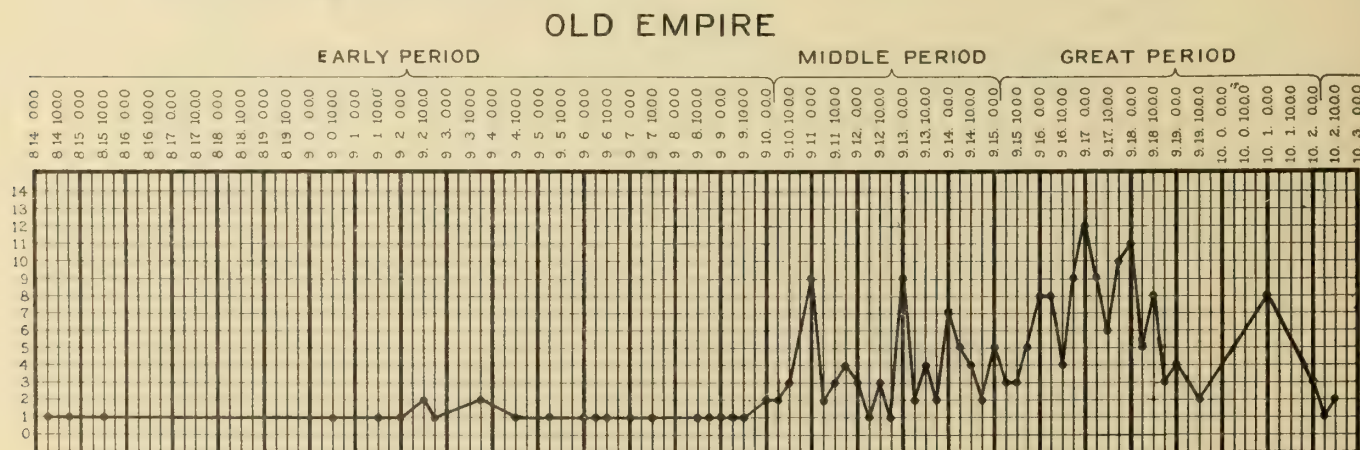


FIG. 70.—Diagram showing the chronologic distribution and frequency of all dated monuments in the Old Empire.

Class 4 is by no means exhaustive; it contains only those small sites where inscriptions have been found, and in the very nature of the case it could be expanded to many times its present size if all the smaller known ruin-groups were included therein. Within the individual classes the order of the cities is chronological.

CLASS I (2).	CLASS II (6).	CLASS III (6).	CLASS IV (21).
Tikal.	Piedras Negras.	Uaxactun.	Altar de Sac.—El Pab.
Copan.	Naranjo.	Yaxha.	Tzendales.
	Palenque.	La Honradez.	Chichen Itza.
	Yaxchilan.	Seibal.	Itsimte.
	Nakum.	Ixxun.	El Cayo.
	Quirigua.	Undated inscriptions.	La Mar.
		Ocosingo.	Aguas Calientes.
			Cancuen.
			Ucanal.
			Benque Viejo.
			Flores.
			Quen Santo.
			Los Higos
			Undated inscriptions.
			Chunvis.
			El Encanto.
			San Jose de Motul.
			Rio Grande.
			Rio Amarillo.
			Chinikiha.
			El Chicozapote.
			Xupa.

The curve of the growth and expansion of the Maya civilization during the Old Empire, based upon the frequency of the dated monuments, is shown in figure 70. The abscissæ of the curve are the successive hotuns of the Long Count from 8.14.0.0.0 to 10.3.0.0.0, shown by the vertical lines as in figure 68, every fourth line, corresponding to a katun-ending, being heavier.

The ordinates of the curve are the number of times any given hotun-ending is recorded on different monuments. Monuments bearing dates other than hotun-endings, as, for example, 8.14.10.13.15 on Stela 9 at Uaxactun or 9.2.13.0.0 on Stela 3 at Tikal, have been plotted in this figure as dating from their current hotun-endings, *i. e.*, as 8.14.15.0.0 and 9.2.15.0.0 for the above two stelæ respectively. The most notable features of the curve are:

1. The practically stationary condition throughout the Early Period, perhaps due to the labors involved in conquering the new environment.
2. The sudden rise just at the end of the Early Period, perhaps indicating that sufficient reserves had been accumulated to extend the sphere of occupation.
3. The gradual rise from this point to the maxima in 9.17.0.0.0 and 9.18.0.0.0, at the height of the Great Period, indicating the normal growth and expansion of a people who had mastered the different problems presented by their environment.
4. The absence of any stations on the curve from 9.19.15.0.0 to 10.0.15.0.0, inclusive, indicating the entire absence of monuments dating from these 5 hotuns.

5. The sharp upward movement in 10.1.0.0.0, when no less than 8 different monuments were erected at 5 different sites.

6. The final return to the base-line after 10.2.0.0.0, indicating the extinction of the Old Empire civilization.¹

THE FALL OF THE OLD EMPIRE.

There remains to be considered but one further question, namely, the several hypotheses which have been advanced to account for the decline and fall of the Old Empire civilization. In discussing this important question, one of the most perplexing in the Maya field, the writer is obliged to admit at the outset that he is unable to offer any single hypothesis which by itself satisfactorily explains the unusual archæological data set forth in the preceding section—a *sudden* cessation of the monuments in the individual cities when each was at its cultural and esthetic apogee, but a *gradual* abandonment of the region as a whole, covering a period of about a century. Probably any social phenomenon as extensive and radical as that of the Maya exodus at the end of the Old Empire—a complete abandonment of a fairly large country which they had occupied for more than five centuries—may not be ascribed to any single cause, but rather to a complex of causes, which, operating together, finally brought about the end observed.

Turning next to the consideration of the principal causes, which at one time or another have been suggested as being responsible for the extinction of the Old Empire civilization, the following seem to exhaust the list: earthquakes, civil or foreign wars, disease, social and political decay, climatic changes, and the exhaustion of the soil by the agricultural methods practised.

Concerning the first or earthquake hypothesis, it appears to be the most improbable of all. It rests primarily upon the present ruined condition of the Old Empire cities, the fallen temples and palaces, and the overthrown and shattered monuments, and upon the prevalence of severe earthquakes in adjacent areas. The heavy earthquakes which so frequently visit the highlands of Guatemala, and which only recently have destroyed the capital of that country for the third time in its history, do not extend with anything like the same severity to the low adjoining coast-plain, *i.e.*, the region occupied by the Old Empire civilization, and this agency may be said to be entirely inadequate to have caused all the ruin observed.

Moreover, a personal examination of all the larger Maya cities known (all in Classes I, II, and III, on page 441 except Ocosingo) has convinced the writer that the luxuriant tropical vegetation in which every one is now buried, or was when first discovered, is alone responsible for the appalling destruction wrought. It should be remembered in this connection that all the Old Empire cities are situated in extremely fertile locations, probably originally selected for town-sites because of this very fact, and when first

¹ The two monuments recording the date 10.2.10.0.0, Stela 2 at Quen Santo, and the lintel from the Temple of the Initial Series at Chichen Itza, both lie without the region of the Old Empire.

discovered they have always been found buried in a dense forest, their temples, pyramids, courts, and plazas overgrown with large trees. These trees have driven their roots deep into the masonry of the different buildings, literally prying the walls apart, causing the collapse of the roofs, the dismemberment of the stairways, and the general destruction and reduction to mounds of both buildings and substructures. In the decay of the trees the monuments suffer. If a large tree in falling strikes a stela, as has frequently happened, it either breaks it into pieces, the usual case, or uproots it entire. The writer has examined several score of such cases, and in the great majority the monument is broken into at least two pieces by the blow, and is not infrequently badly shattered.

If the overthrow of the monuments had been caused by earthquakes, more would be simply uprooted and fewer broken than is actually the case, and even granting that some of the present destruction has been brought about by earthquakes, it appears unlikely that this agency alone would have been sufficient to have caused the Maya to completely abandon their cities, in the embellishment of which they had spent such prodigious efforts and where they had lived for four or five centuries, and would have forced them to seek new homes so far distant. Such an abandonment is contrary to human practices under similar conditions elsewhere in the world; indeed, no more distant from the southern Maya area than Guatemala itself, the capital of which has been thrice destroyed by earthquakes and thrice rebuilt, or El Salvador, the capital of which is said to have been destroyed sixteen times. Cities have been abandoned and possibly never rebuilt because of destruction by earthquakes, but whole countries never, and since the vegetation now covering the sites of the Maya cities is alone sufficient to account for their destruction, the writer believes the seismic hypothesis may be rejected.

Joyce suggests that war waged against the Maya by tribes to the northwest brought about the extinction of the Old Empire civilization:

"The Maya, to judge from the monuments, had enjoyed centuries of peace, and only in the northeast and north do we find reliefs which give any hint of war. But these may be significant and no doubt the decline of the old culture was due to pressure exercised by their northern neighbors, a pressure which had its origin in the steady southerly drift of tribes from regions considerably farther north, and which led to the occupation of the Mexican valley by the Nahuatl-speaking Toltec."¹

This conclusion, as Joyce himself concedes, however, is counter to the bulk of the evidence from the Old Empire reliefs. At Copan and Quirigua, for example, the principal subject treated is a human figure, deity, ruler, or priest, magnificently garbed and holding in his hands emblems of civil or religious authority. At Palenque and Yaxchilan, religious ceremonies, sacrifices, self-torture, etc., are set forth; and at Tikal and many other cities, human or divine figures are again the subjects portrayed.

At some of the northern cities the principal figures stand on the backs of crouching human-beings who have been identified as captives, and at

¹ Joyce, 1914, pp. 364, 365.

Piedras Negras captives bound with ropes and stripped of all clothing and ornaments appear huddled together before a ruler seated upon a throne with attendants standing on either side (Stela 12); or again, an elaborately dressed ruler with spear in hand and an attendant standing behind him faces 6 kneeling captives or warriors, also armed with spears (Lintel 2). These two monuments, and particularly Stela 12, have been interpreted, and probably correctly, as records of specific conquests, the captives representing the fallen rulers, cities, or tribes with their corresponding name-glyphs engraved on their shoulders or thighs. But at best these are only sporadic cases, and an overwhelming majority of the Old Empire sculptures portray religious ceremonies, deities, rulers, and priests.

Again, the lines of migration followed by the Nahua tribes south through Central America, the Mexican group in southwestern Chiapas, the Pipil in eastern Guatemala and western Salvador, the Niquiran in southern Nicaragua, and even the Sigua on the Caribbean coast of Costa Rica would *always* appear to have been along the *Pacific Coast-plain* and *never* along the *Atlantic side of the Continental Divide*, south of which the Old Empire Maya never established themselves. That is, there is no archæological evidence that the two races ever came into contact, except possibly at Copan on the southeastern frontier and from Ocosingo northward in the extreme west.

Moreover, the closing dates in the different Old Empire cities, as we have seen, themselves indicate that they were not abandoned simultaneously, but that the period of exodus covered more than a century, beginning in the extreme west (Palenque) and south (Copan) and moving eastward and northward, the last cities to be abandoned being the group in northeastern Peten—Flores, Ucanal, Benque Viejo, Naranjo, Nakum, Tikal, and Uaxactun—and Seibal in central Peten. If conquest by some other people had been the cause of their downfall, it would probably have been effected more rapidly, not dragging on for more than a century, and some record of it, in all likelihood, would have appeared on the monuments, particularly those of the northeastern cities, which were the last to be abandoned.

It has been shown in the preceding section that after the close of the Old Empire in 10.2.0.0.0 the whole Peten region was abandoned, and probably remained without inhabitants, entirely deserted by man, for more than 800 years, until about the middle of the fifteenth century, when the northeastern corner, the region around Lake Peten Itza, was colonized by the Itza moving south from Chichen Itza and out of Yucatan after the fall of Mayapan about 1447 A. D.

There are no remains in all this region of any people or civilization other than the Maya—nothing earlier¹ and certainly nothing later, and if the Maya had been driven from their homes by foreign conquerors, it would appear inevitable that such conquerors would have left behind them some trace of their occupation of the country, however slight, in the monuments or

¹ As already noted on page 438, note 1, Mercer found similar conditions in the northern part of the region covered by the New Empire.

architecture of the conquered cities; but such is not the case. On the contrary, if war were the cause of the extinction of the Old Empire civilization, it would appear more likely to have been civil war, possibly the north against the south. Indeed, the possibility of internecine strife as one of the causes which may have contributed to the fall of the southern Maya cities can not be entirely overlooked. Eight centuries later, at the close of the New Empire, after the termination of the disastrous civil war which devastated the whole northern part of the Peninsula of Yucatan, all the Maya cities, those of the victors as well as of the vanquished, were abandoned outright, and new ones were founded. Thus the Tutul Xiu moved some 30 kilometers east of their old capital, Uxmal, and founded a new one at Mani; the Cocom, the losers in the struggle, were permitted to reestablish themselves at Sotuta, 60 kilometers southeast of Mayapan; and the Itza, not satisfied with the idea of founding a capital near their former homes, left the peninsula altogether and migrated southward into Peten, the region from which they had originally come, and reestablished themselves around Lake Peten Itza, as already noted.

In the case of the Itza we may possibly have a parallel indicating what may have happened at the close of the Old Empire, and, as mentioned above, the factor of civil war probably can not be entirely overlooked as one of the contributory causes of the phenomenon we are seeking to explain; but so far as conquest by a foreign people is concerned, the weight of all the archæological evidence summarized below practically eliminates this hypothesis from the field of possibility:

1. The long period, more than a century, judging by the closing dates on the monuments, during which the Old Empire cities were being abandoned.
2. The complete absence of archæological remains other than those of the Maya in the region in question.
3. The meager representation of war-like subjects on the monuments of the Old Empire.
4. The fact that the lines of migration followed by the Nahua tribes south through Central America were exclusively on the Pacific Coast-plain, *i. e.*, south of the Continental Divide, and that except possibly at Copan on the southern frontier and along the western frontier in Chiapas and Tabasco the two races never seem to have come into contact during the Old Empire, at least a contact sufficiently violent to have expelled the Maya from their homes.

The hypothesis of a disease, of a general pestilence, which practically depopulated the country, causing the survivors not only to abandon their plague-stricken cities but also to seek new homes in other lands, is so contrary to historical precedent under similar conditions elsewhere among mankind that it may probably be dismissed from consideration even as a remote possibility. Moreover, such a hypothesis, while fitting the fact of sudden extinction in the individual cities, can hardly be made to explain the gradual extinction over the area as a whole. To explain this latter fact by the disease hypothesis it is necessary to postulate either a long series

of malignant epidemics extending over a century, striking first one city and then another scattered over a large region, or an endemic of sufficient virulency to have accomplished the same end, but working more slowly. The first would be almost if not quite unique in medical annals, and the second, even if granted, is hardly sufficient in itself to have brought about the complete evacuation of the entire region covered by the Old Empire civilization. And yet malaria of a pernicious type is endemic in this region to-day, and may have been during the Old Empire as well, although this point is not certain. It is generally believed that when the Old Empire civilization was at its height, the forests which now cover the country were down and the land cleared and under cultivation. If so, there would not have been nearly so many breeding-places as there are to-day for the myriad insects which now make the region so unhealthful, and the mosquito (*Anopheles*) in particular, must have been very much less abundant, and malaria, if present at all, correspondingly less prevalent. To-day, as the writer can testify, this disease is an ever-present source of sickness and debility among the scattered itinerant population of the Peten forests, mahogany-cutters, chicle-bleeders, and a few hundred Indians, and in order for the Old Empire civilization to have developed at all in such an unfavorable environment, let alone to have achieved the most brilliant results in architecture and sculpture in ancient America, it is almost necessary to postulate the former non-existence of malaria, or at least its very limited prevalence.

During the Old Empire, and particularly during the Great Period, when the greatest number of cities flourished and the country supported a really large population, possibly five hundred times larger than it is to-day, we must assume that the forests, particularly in the vicinity of the cities, were down, and that consequently malaria was very much less prevalent than it is at present. But let any condition arise which would bring back the forests, such as Huntington believes actually took place through supposed climatic changes during the fifth and sixth centuries after Christ, malaria would almost certainly have increased immediately and played an important part in discouraging the Maya with their old homes. Even if such climatic changes as those suggested by Huntington are not postulated, it is not improbable that malaria was endemic during the Old Empire as well as to-day, although less general, and it may have been one of the minor causes contributing to the great historic movement under investigation.¹

¹The two most devastating diseases prevalent in the Old Empire region to-day are malaria and hook-worm, both caused by parasites, the former of the blood, the latter of the intestinal tract. Both General Gorgas of the International Health Board of the Rockefeller Foundation, and Assistant Surgeon General Stiles of the Public Health Service agree that the latter was not indigenous to America, but was introduced here from the West Coast of Africa with the slave trade. Neither, however, feels able to say as much of malaria. Gorgas recently told the writer he believes the place of origin of this disease to be still an open question and Stiles in a letter of November 12, 1919, says: "I would not commit myself definitely to the question of the origin of malaria other than to say that it is a tropical and a subtropical disease." It would appear from these authorities that malaria with its serious sequelæ of debilitation and permanent impairment of health, resulting in decreased productivity in every line, may have been the chief ailment with which the ancient Maya had to contend.

Spinden believes the tendency toward flamboyancy, extravagancy of design, which became more and more pronounced as the Great Period advanced, is a sign of decadence in art, and that it must indicate a corresponding physical, moral, and political decadence in the life of the Maya of the time, sufficient in itself to have encompassed the downfall and extinction of the Old Empire cities:

"The explanation of the eclipse of all that was finest in Maya civilization is not far to seek. Any long-continued period of communal brilliancy undermines morals and religion and saps the nerves and muscles of the people as a whole. Extravagance runs before decadence, and civil and foreign war frequently hasten the inevitable end."¹

The evidence upon which this opinion is based, however, scarcely warrants such a radical interpretation, the writer believes. While it is undeniably true that flamboyancy in decorative motives increased steadily during the Great Period, reaching on the last monuments at the different cities an almost bewildering ramification of detail, it does not follow that the Maya could not have carried this extravagancy of design even further, if they had had more time in which to do so; and so far as technique, treatment, and the like are concerned, the latest monument in each city is technically the best, showing no loss in skill and proficiency in technical processes up to the very end.

Spinden argues, and perhaps correctly, that this admittedly decadent tendency which became the dominant characteristic of Maya art toward the close of the Great Period may be traced to a corresponding social decadence, involving all phases of the life of the time. But even admitting the existence of widespread intellectual exhaustion following hard upon the heels of a period of forced esthetic brilliancy, the writer can not bring himself to believe that this alone would have been sufficient to have caused the abandonment not only of all the Old Empire cities, but also the evacuation of the entire southern region as well. Such a condition as Spinden sees might well result in the erection of fewer and less meritorious monuments, but it would not account for their sudden cessation, apparently at the highest point of technical if not esthetic development. Men do not leave their homes and travel long distances through dense forests to found new ones for such a trivial reason as this. Indeed, in summing up his opinion of this hypothesis, the writer believes that in order satisfactorily to account for the facts observed, a more coercive physical cause must be sought; in a word, that the factor which set the Maya moving a second time over a large area was an urgent material necessity with which they found themselves confronted, rather than moral and political decay, postulated solely upon esthetic exuberance evidenced by pronounced flamboyancy in decorative motives.

¹ Spinden, 1913, p. 198.

Perhaps the best known hypothesis seeking to explain the extinction of the Old Empire civilization is that suggested by Huntington, who believes a climatic change in the way of an increased annual rainfall, bringing disease and impossible living conditions in its wake, is the principal factor which led to the abandonment of the southern cities. Huntington had previously advanced the general hypothesis of climatic change to account for similar archæological conditions, *i. e.*, the abandonment of regions formerly intensively occupied by man, in other parts of the world, notably in Turkestan,¹ western China,² and Palestine,³ due in these regions to progressive drying-up of the water-supply, and later extended its application through the exact opposite of climatic conditions, *i. e.*, an excessive rainfall, to the Maya area. As applied to the Maya area⁴ this hypothesis may be thus summarized:

Due to a supposed shift of general climatic zones toward the Equator during the first millenium before Christ and persisting down to 450 after Christ, the present zone of subtropical dryness was pushed southward to the edge of the tropical zone of rains (*i. e.*, the Maya area), especially in the winter. This change, postulated on data derived from the big trees of California (*Sequoia washingtoniana*) and involving there a period of increased rainfall, is supposed to have brought to the region of the Old Empire a more pronounced and longer dry season than it now enjoys, less precipitation during the rainy season, and a more stimulating climate, characterized by greater variability of temperature, particularly in the winter time. Under these latter climatic conditions Huntington believes much of the dense tropical forest which now covers this region and renders it so full of disease, particularly malaria, as noted above, would disappear and living conditions would be improved. In fine, he assumes that such favorable conditions actually did precede the rise of the Maya civilization during the first millenium before Christ, when they were probably developing their culture and graphic system to the point of recording it on stone, and that these conditions continued throughout the Early Period and the first half of the Middle Period, but with gradually increasing unfavorability, that is, increasing rainfall; until toward the close of the Middle Period, by 450 A. D., the climate had deteriorated to such an extent that the rainfall was as heavy as it is to-day in this region, and was causing the Maya both trouble and concern.

At this point, however, the pendulum swung the other way; the rainfall decreased, the climate improved, the forest grew less rapidly, it became easier to keep the cornfields from being smothered by a too luxuriant vegetation—in short, living conditions which had been growing steadily worse for several centuries suddenly took a turn for the better; as Huntington says, the people took heart, and thus the Maya began the Great Period, the Golden Age of Maya sculpture, with increasingly favorable climatic conditions which continued for nearly a century until 540 A. D.

¹ Huntington, 1905.

² *Ibid.*, 1907.

³ *Ibid.*, 1911.

⁴ *Ibid.*, 1913, pp. 467-487; *ibid.*, 1914, chapters xv-xviii; *ibid.*, 1915, pp. 239-243; *ibid.*, 1917, pp. 150-164.

In 540 A. D. (approximately 9.18.10.0.0 according to the writer's correlation of Maya and Christian chronology), a return of the rainier conditions of the preceding century was experienced and building operations were again checked. This did not last long, however, and in the latter half of the century, after Copan had been abandoned, drier conditions returned for a brief period, during which time the last monuments in the Old Empire were erected (10.1.0.0.0 to 10.2.0.0.0).

Finally, after the first decade of the seventh century, the climate rapidly became much worse even than it is to-day; the dry season became so short that the bushes could not be burned, and thus it became impossible to practice the only system of agriculture with which the Maya were familiar, *i. e.*, felling the bush at the end of the rainy season and burning it when dry. Disease became more prevalent, the climate more enervating, and finally, in despair, the Maya abandoned the country and sought new homes elsewhere.

Huntington, as mentioned above, bases his hypothesis upon data derived from the *Sequoia washingtoniana* of California, and finds his best agreements with the correlation of Maya and Christian chronology proposed by the writer (see Appendix II).

The principal objection to this hypothesis is that periods of increased rainfall in southern California *may not* have been accompanied by periods of diminished rainfall and more favorable agricultural and general living conditions in the region occupied by the Maya during the Old Empire.

Huntington's postulate, that the climatic changes, which seem fairly well established for southern California, were coincident with diametrically opposed climatic changes in the southern Maya field, 4,000 kilometers distant to the southeast, is a very doubtful assumption, and one by no means established by his California data. Indeed, precisely here lies the weakness of his entire hypothesis, for if it could be proved that periods of increased rainfall in southern California were actually accompanied by corresponding periods of diminished rainfall in the southern Maya field, and to the extent which he claims, his whole argument would be very greatly strengthened, since the agreements between the chronologic data established by the *Sequoia washingtoniana* and the dates of the Old Empire cities in the writer's correlation of Maya and Christian chronology are, to say the least, striking.

The recent meteorological investigations of Arctowski, of Brooks, of Helland-Hansen and Nansen, of Hilderbrandsson, and of Penck, it must be admitted, tend somewhat to support Huntington's basic assumption that opposite climatic conditions are frequently found simultaneously in regions no farther apart than those here under consideration. Says Hilderbrandsson in this connection:

"In winter the course of the meteorological elements over the part of the ocean lying between Iceland and Norway agrees with that which occurs over the north of Europe, but is in opposition to the course of the same elements over the sub-tropical region, the Azores to the Mediterranean."¹

¹ Hilderbrandsson, 1916, p. 228.

These two regions are about 4,500 kilometers apart in round numbers, or about 500 kilometers more than the big trees of California are from the region of the Old Empire.

Penck, the leading German authority on climate, agrees with Huntington, on independent lines of research, that the present zone of aridity in the Northern Hemisphere formerly lay much nearer the Equator, which, if so, would have brought to the region of the Old Empire a somewhat drier climate than it now enjoys:

"All this leads us to assume that the area of extreme aridity in Africa once lay much nearer the Equator than it does to-day, exactly as was the case in both Americas, and guided again by the phenomena of the Great Basin, we may fix this period in the Ice Age. The Great Ice Age presents itself, then, neither . . . nor as a period of excessive humidity over the whole earth, but as a period during which the climatic belts were shifted into lower latitudes."¹

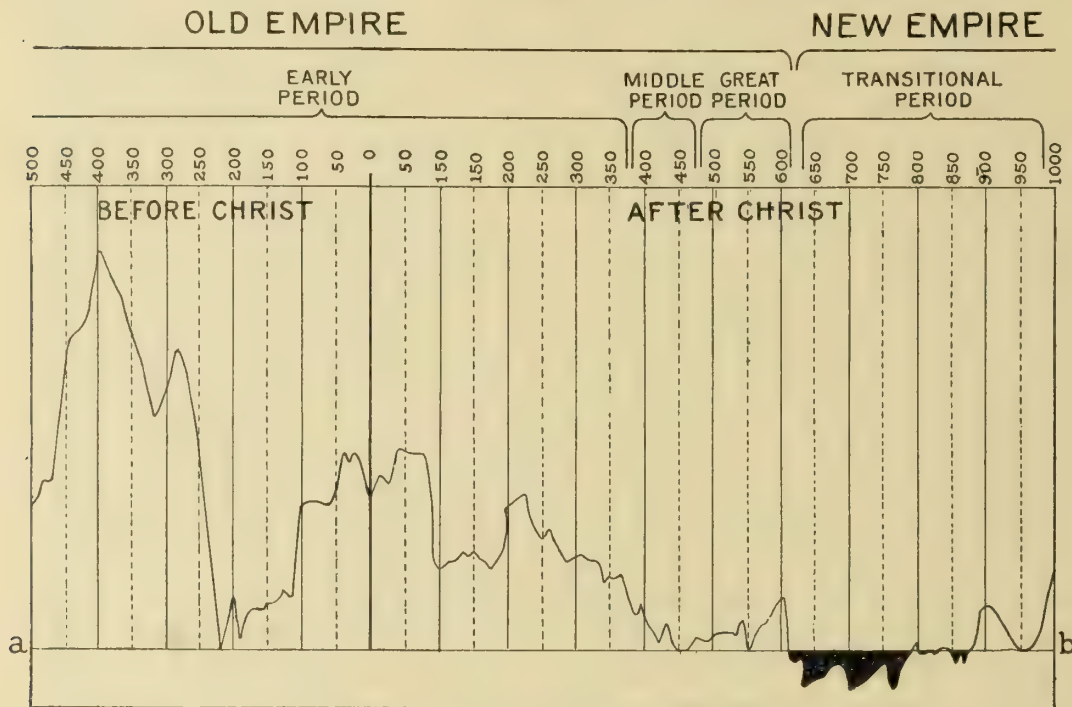


FIG. 71.—Diagram showing supposed variation in rainfall in the Maya area from 500 B. C. to 1000 A. D., after Huntington.

The striking agreements mentioned above between the climatic curve obtained from the *Sequoia washingtoniana* and the writer's correlation of Maya and Christian chronology appear clearly in figure 71, which shows the variation in rainfall in California for 1,500 years, during the last 500 years before Christ and the first millennium after Christ, as established by the varying thicknesses of the rings of 450 *Sequoia washingtoniana*.² Huntington gives the following general explanation of this curve:

¹ Penck, 1914, p. 290. Other recent investigations in this field will be found in the bibliography under the following titles: Arctowski, 1910-1913, vol. XLII, pp. 270-282, 481-495; vol. XLIV, pp. 598-606, 745-760; vol. XLV, pp. 117-131; Brooks, 1916, pp. 249-255; Helland-Hansen and Nansen, 1916, pp. 1-341; and Huntington, 1918, pp. 483-491.

² Huntington, 1917, p. 158.

"According to our hypothesis the high parts of the curve mean abundant rainfall in southern California, but diminished rainfall and a pronounced dry season in the Maya area. Therefore they are the favorable periods. The low shaded areas [the black sections, below the line *ab* in figure 71, the level of present precipitation], on the contrary, indicate times of drought in California, but of abundant rain at all seasons in the Maya area, with consequent dense forests, difficult agriculture, overwhelming disease, and enervating damp heat at all times."¹

During the first five hundred years before Christ and down to the beginning of the third century after Christ, when it is necessary to assume the Maya were developing their peculiar culture and remarkable calendar and chronologic system, extremely favorable climatic conditions, denoted by the general height of the curve above the line *ab* in figure 71, seem to have prevailed between 14° and 18° north latitude, the region of the Old Empire civilization, according to Huntington's hypothesis.

It will be noted further, that beginning with the third century after Christ, a steady decline in the curve sets in, which continues with but few minor variations until the middle of the fifth century. That is to say, according to the writer's correlation of Maya and Christian chronology, the climatic conditions during the Early and Middle Periods grew steadily worse, although up to the early part of the Middle Period they were still fairly good. By the middle of the fifth century, however, the annual rainfall had become as heavy as it is to-day in this region, a fact indicated by the curve having dropped to the horizontal line *ab* in figure 71, and living conditions, according to Huntington's hypothesis, had become intolerable. At this point, however, the curve sweeps upward and so continues with few minor variations for nearly a century, until 540 A. D., indicating a return of favorable climatic conditions to the southern Maya area, and in the writer's correlation of the two chronologies, coinciding with the last katun of the Middle Period and the first two and a half katuns of the Great Period, the katuns of maximum sculptural and architectural activity.

From 540 to 560 (approximately 9.18.10.0.0 to 9.19.10.0.0, according to the writer) the curve again makes a sudden drop to the unfavorable level of present conditions, and then rises rapidly between 560 and 610 (approximately 9.19.10.0.0 to 10.2.0.0.0, according to the writer), only to drop as suddenly to new low levels after 610, indicating heavier annual rainfall and more unfavorable conditions than even to-day, which continued for more than two and a half centuries. And just here is perhaps the most satisfactory agreement between the dates on the monuments and Huntington's diagram. No two katuns of the Middle and Great Periods are represented by fewer monuments than the two between 9.19.0.0.0 and 10.1.0.0.0 (551 to 590); indeed, there are only two monuments now known (Stela D at Nakum and Stela 32 at Naranjo) which date from this period. The beginning of this lacuna in the monumental sequence falls almost in the middle of Huntington's second minimum after the birth of Christ, and under his hypothesis is

¹ Huntington, 1917, p. 158.

to be interpreted as indicating a falling-off in the erection of stelæ owing to the prevalence of extremely unfavorable climatic conditions. A number of monuments, however, were erected in 10.1.0.0.0 and 10.2.0.0.0 (591 to 610 according to the writer), which Huntington would have us believe was due to a return of more favorable climatic conditions, evidenced by the continuous rise of the curve from 560 to 610. Finally comes the sudden cessation of all monuments in the Old Empire after 10.2.0.0.0 (610 A. D. according to the writer), evidenced by a drop of the curve to new low levels of unfavorability and its continuance there for the next two and a half centuries, during the first part of which period the Maya are known to have abandoned the southern cities, as Huntington believes, due to the prevalence of the worst climatic conditions they had ever experienced.

In spite of these satisfactory, not to say almost startling, agreements, the writer feels unable to accept this hypothesis as the principal explanation why the Maya abandoned such a large region as that covered by the Old Empire, although admitting that climatic changes may have been partially responsible therefor.

The principal objection to Huntington's hypothesis, as already pointed out, is not his data on the variation of rainfall in southern California, which appear to be fairly well established by the varying thickness of the rings of the *Sequoia washingtoniana*, nor is it so much a question of possible inaccuracy in the writer's correlation of Maya and Christian chronology, which now appears from all indications to be correct with a maximum margin of error of not more than one year (see Appendix II), but rather uncertainty as to the accuracy of his basic postulate that climatic changes in southern California were accompanied by and coincident with diametrically opposed changes 4,000 kilometers distance to the southeast. This is a far-reaching and fundamental assumption, and even in spite of the apparently corroboratory results recently obtained by Penck, Arctowski, Helland-Hansen and Nansen, Hildebrandson, and Brooks in this field, it seems safer to withhold unqualified acceptance thereof until the laws governing climatic changes have been more thoroughly worked out than at present, and their nature and operation more clearly understood.

There remains to be considered but one more hypothesis, which seeks to explain the extinction of the Old Empire civilization, namely, that suggested by Cook,¹ that the system of agriculture practiced by the Maya eventually reduced the soil to such a state of unproductivity that they were literally starved into moving elsewhere. He sums up his conclusions in the following words:

"Apart from dangers of war or pestilence to which the ancient communities of Central America may have been exposed, their existence was definitely limited by methods of agriculture which denuded the country of its forests, and destroyed the fertility of the soil. Civilization is at an end when an agricultural country ceases

¹ Cook, 1909.

to be adapted to agriculture. To recognize these natural limitations of the primitive civilizations of Central America should make us more careful to appreciate and to correct the harmful tendencies of some of our own systems of agriculture."¹

Cook's conclusions are based upon personal studies in the highlands of Guatemala, and in the State of Chiapas, Mexico, among the descendants of the Old Empire Maya, the Quiché, Cakchiquel, Tzutuhil, and other modern representatives of the Maya stock in this region, where the methods of agriculture in vogue have changed little if any since pre-Columbian times.

The Maya method of agriculture, ancient as well as modern, may be briefly summarized as follows: cutting, burning, planting, and sometimes weeding. As soon as the rainy season is over a new piece of forest is cleared, usually in January or February, and the fallen trees and underbrush are allowed to dry under the fierce heat of the March and April sun. When sufficiently dry to burn readily, usually in March and not later than April, the clearing is burned. Throughout the Maya area, north as well as south, the skies in April are covered with a pall of smoke, the sun setting each night a ball of fiery red. It is the time of the *milpa* (cornfield) burning, just before the end of the dry season.

After the first rains, usually during the first half of May, the corn is planted among the fallen, charred trees, some of which have not been entirely consumed. A sharpened fire-hardened stick is generally used, and the corn planted 5 to 7 cm. deep. In some places weeding is practiced, in others not, the burning being deemed sufficient to retard the growth of weeds until after the corn has a good start. The harvest is usually not garnered at all. In August, when the corn has ripened, the ears are bent down and left hanging on the stalks to be gathered only as they are needed, in some cases being left on the stalks until the end of the dry season, when the last are picked and brought in. This method of harvesting is not so casual as it first appears, since the ears are much less subject to attack by insects, decay, etc., when left hanging on the stalks in the open air than when they are picked and stored in floorless thatched huts, where deterioration from all causes is more rapid.

Whatever may have been the practice in ancient times, to-day the same field is not usually put under cultivation two successive seasons; but a new piece of forest is cleared and the same process repeated. This is done because the second season's crop from the same field is from 40 to 50 per cent. less than the first season's yield, and the natives, as a rule, prefer the larger return even at the cost of the greater labor involved in clearing new pieces of the forest each year.

After lying fallow from 2 to 5 years, and in some places even 7 years, sufficient trees and bushes have grown up in a clearing to permit its being put under cultivation again, and then the same process is repeated and the cycle of *milpa* rotation is complete. But each time the same clearing is

¹ Cook, 1909, p. 23.

burned, more and more of its humus soil is destroyed by the fire, and it requires longer and longer intervals of time for the woody growth upon which such a system of agriculture depends to return. After each successive burning more and more coarse grass grows up, and fewer and fewer trees and bushes, until finally nothing but coarse grass will grow and agriculture as practiced by the Maya is no longer possible. Cook describes this process in the highlands of Guatemala as follows:

"The usual system of corn culture involves the repeated burning off of the weedy growth and a resulting exposure of the soil. This causes a gradual deterioration of the crops of corn and a slower renewal of the woody vegetation. New clearings in the forest are soon covered again with bushes, and can be cut, burned, and planted again within a year or two. With each cutting the interval has to be lengthened, until finally the land becomes thoroughly occupied by coarse grasses which are not killed by fire. The Indians can then make no further use of the land for agricultural purposes."¹

This method of agriculture, he goes on to say, has been carried in the highlands of Guatemala, at San Pedro Carcha near Coban, for example, to the point where the barren grassy zone is of such an extent that the Indians plant their *milpas* in the Cajabon district, 80 kilometers distant, and carry the crop home on their backs.

As applied to the Old Empire, such a system of agriculture would have required a vast extent of territory to have supported the large population which formerly occupied this region, and if this hypothesis is correct, perhaps we are to imagine the ancient inhabitants of Copan, Tikal, and the other southern Maya cities as being driven farther and farther from their homes in order to find suitable forested regions in which to make the clearings for their *milpas*.

Such a system of agriculture, if pursued long enough, would eventually have exhausted all the available forest lands within practicable carrying distances of the centers of population, and with grassy savannas stretching far out on every side replacing formerly forested regions; as Cook says: "civilization is at an end when an agricultural country ceases to be adapted to agriculture."

This hypothesis appeals to the writer personally more than any of the others described. To begin with, it best explains the *progressive* abandonment of the Old Empire cities, which we have seen took place not all at once, but scattered over a period of about a century. This replacing of the forests by grassy savannas, and the end of cultivability so far as the Maya agricultural methods were concerned, must have come about gradually, reaching really acute stages at the different cities at different times, depending upon such variable factors as their relative sizes and ages, and the general fertility of their surrounding regions.

Thus the point at which complete abandonment and migration elsewhere came to be generally recognized as the only remaining solution for

¹ Cook, 1909, p. 11.

their desperate economic situation must in the very nature of the case have been reached at a different time at each city, giving rise to different closing dates in each, the extremes possibly covering a century, and thus conforming better than any of the other hypotheses with the chronological data actually found.

This hypothesis also explains the greater salubrity and healthfulness of the climate in the southern Maya field during the Old Empire than at present, upon which Huntington lays such stress. For with the forest cleared from the immediate vicinities of the cities and the surrounding country under cultivation, less standing water would have collected, and the malarial mosquito would have occurred in far less abundance than in these same regions to-day, making the living conditions far more healthful than they are now.

The writer has stated that every Old Empire city with which he is familiar is, or was when first discovered, covered with a luxuriant vegetation, a dense tropical forest. Cook offers convincing evidence, both botanical and zoological, tending to show that these forests are not original primeval forests, but are examples of reforestation over previously cleared areas.

"Reforestation can be traced through a succession of temporary types of vegetation, such as pines, oaks, *Curatella*, *Acrocomia*, *Cecropia*, *Castilla*, and *Attalea*. These are abundant in regions undergoing reforestation, but are extremely rare in virgin forests or in those sufficiently old for tropical hardwood trees to have grown to maturity and occupied the land, along with their attendant hosts of epiphytes and shade-tolerant undergrowth. It thus becomes evident that many of the existing forests are not permanent or primeval, but show the intermediate stages of a process of reforestation which probably requires several centuries to reach a stable condition. . . .

"Central America is the home of many species of the *Chamædorea*, and other small palms which live among the undergrowth in the shady depths of the forests. Nevertheless many localities affording conditions apparently suitable for these palms are without any representatives of the group. The undergrowth palms remain abundant only in regions which have not been completely deforested for agricultural purposes, and especially in districts too mountainous and broken for agricultural use."¹

His zoological evidence on this point is equally satisfactory:

"Localities which contain remnants of ancient forests can be recognized by the presence of complete faunas of humus-inhabiting forest animals, such as the millipeds and centipeds, and some of the lower orders of insects and arachnids. In districts which are frequently cleared by cutting and burning many of the humus-inhabiting groups are exterminated. Even if they escape the fire they are unable to resist the exposure to the heat, sunlight, and dryness of cultivated lands. As long as the surface soil retains its humus and remains loose and pervious to water some of the smaller subterranean forms will persist, but when denudation is complete, or when the soil becomes sticky and impervious the humus-inhabiting types entirely disappear, as in many of the tenacious 'gumbo' soils of the Texas prairies.

¹ Cook, 1909, pp. 12, 13.

"Many forested places in Central America, which now afford conditions favorable for these humus-loving animals, are occupied by small and incomplete faunas. This shows that the period of reforestation has not been long enough to permit these sedentary, slow-moving creatures to spread again over the reforested areas. Thus in the valley of Ocosingo [an old Empire city, see plate 1] in southern Mexico are many such tracts of new forest in which the humus fauna is still very poorly represented."¹

Cook's suggestion that many of the Central American forests are of recent growth was corroborated by Whitford's investigations in the Motagua Valley in June 1919.

Under Cook's hypothesis we are to conceive the Maya as founding their first cities in northern Peten in the midst of a vast primeval tropical forest, and as gradually felling this forest in the vicinities of their settlements and putting the cleared lands under cultivation.

Later, penetrating southward through the Peten forest, some of the Maya eventually reached Copan and repeated this same process of clearing and cultivating there. Still later, other cities were founded, and gradually the whole region covered by the Old Empire was brought under intensive occupation.

Perhaps as early as the Middle Period, judging from certain archæological evidence to be presented shortly, there began to be concern over the economic condition, the increasing difficulties in the way of securing adequate supplies of corn, the great Maya staple. As early as the Middle Period, if Cook's hypothesis be correct, the increasing distances to which the people had to go to find suitable land for their *milpas*, especially around the older cities, where the zones of grassy savannas had become the largest, must already have occasioned the rulers and priestly caste considerable anxiety. But before the end of another century, *i.e.*, in the Great Period, the situation must have become so acute as to have caused general dissatisfaction with, if not indeed actual distrust of, deities, rulers, and priests who could permit such a condition to continue unchecked.

The writer imagines many of the religious ceremonies of the time must have been specially devised for meeting this grave national crisis, and for seeking the aid of their deities, particularly those of fructification and fertility, to avert the threatened extinction of the food-supply, which was drawing ever nearer and nearer.

That no solution for this urgent national economic problem was found would appear to be indicated by the fact that from 9.18.0.0.0 on, one by one the southern cities were abandoned; at least no more monuments were erected in any one of them after 10.2.0.0.0, and indeed, a few of them—Palenque, Altar de Sacrificios, and Itsimte for example—had possibly been abandoned much earlier. (See fig. 69.)

The earliest abandonments would naturally have taken place at the oldest cities, or those where the total area available for cultivation had not

¹ Cook, 1909, p. 14.

been large in the first place. Thus, under Cook's hypothesis, it is not surprising to find that Copan was one of the first of the larger cities to have been abandoned, 9.18.10.0.0 being the last contemporaneous date found there. Not only was it one of the very oldest of the cities, but also it was located in a small valley where the area available for cultivation was comparatively restricted.

Piedras Negras, located in a small semicircular flat surrounded by hills on one side and the Usumacinta River on the other, appears to have been abandoned about a hotun earlier, *i.e.*, 9.18.5.0.0, and Yaxchilan, on the opposite (west) bank of the same river, in a similar location higher up, about the same time, 9.18.3.1.5. The closing dates at Quirigua and Uaxactun, located in the midst of fairly broad plains, are the same, namely, 9.19.0.0.0, and that at Naranjo, similarly located, is only 10 years later, *i.e.*, 9.19.10.0.0. Thirty years later, in 10.1.0.0.0, we get the closing dates at Benque Viejo, Ucanal, and Nakum, all in the northeastern corner of Peten, and 20 years later, in 10.2.0.0.0, the last dates of the Old Empire at Flores, Tikal, and Seibal, the last two being located in the midst of very large plains, the former in the northeastern section of Peten, and the latter in the rich valley of the Pasión River, 150 kilometers farther south.

Probably not long after 10.2.0.0.0 the last of the Maya moved out of the Peten region, some going north into Yucatan and others south into the highlands of Guatemala, and the cities of the Old Empire were left deserted, to be reclaimed eventually by the same tropical forest from which they had originally been carved. Happily we are not without direct archæological evidence as to the two-fold direction of this Mayan exodus which completely depopulated the Old Empire, the nature of which we will now proceed to examine.

To begin with, as early as the Middle Period, in 9.13.0.0.0 or 9.14.0.0.0 (according to the writer's correlation of Maya and Christian chronology), we have documentary evidence of the discovery of the region lying to the north of the Old Empire, *i.e.*, the Peninsula of Yucatan. Three of the five chronicles in the Books of Chilan Balam, those from the Mani and Tizimin manuscripts, and the first chronicle in the Chumayel manuscript, record the discovery of the Province of Ziyancaan or Bakhallal¹ in 9.13.0.0.0 or 9.14.0.0.0. The Mani manuscript describes this event in the following words:

"Then [9.14.0.0.0] took place the discovery of the Province of Ziyancaan or Bakhallal; 4 Ahau [*i.e.*, 9.15.0.0.0 4 Ahau 13 Yax], 2 Ahau [*i.e.*, 9.16.0.0.0 2 Ahau 13 Tzec], 13 Ahau [*i.e.*, 9.17.0.0.0 13 Ahau 18 Cumhu], three score years they ruled Ziyancaan when they descended here; in these years that they ruled Bakhallal, it occurred then that Chichen Itza was discovered."²

¹ Brinton (1882, p. 124) gives the following etymology for these two names: Bakhallal "cane-brakes," *halal* the cane and *bak* roll or inclosure, possibly referring to the cane-brakes around the shores of the lagoon of this name in the southeastern part of the peninsula; and Ziyancaan, "the birth of the sky" *ziyan*, birth and *caan*, sky. Brinton believes the latter is a picturesque allusion to the view from the seashore nearby, where the sky appears to rise from out of the water.

² *Ibid.*, pp. 95, 96, 100, and 101.

The Tizimin manuscript places this event 20 years earlier:

"8 Ahau [*i. e.*, 9.13.0.0.0 8 Ahau 8 Uo] it occurred that Chichen Itza was learned about; the discovery of Ziyancan took place."¹

The Chumayel Manuscript agrees with the Mani text as to the date:

"In 6 Ahau [*i. e.*, 9.14.0.0.0 6 Ahau 13 Muan] took place the discovery of Chichen Itza."²

Let us next ascertain the location of the Province of Ziyancaan or Bakhalal. The former name has not survived as that of any known locality in the Maya area at the present time, but Bacalar, the Hispanicized form of the Maya Bakhalal, is the name of the large lagoon in the southeastern part of the peninsula, some 80 kilometers northwest of Santa Rita Corozal, British Honduras. (See plate 1.) This is the first place-name mentioned in the Books of Chilán Balam which still attaches to a definite geographical locality; and a glance at plate 1 will show that the region west of Lake Bacalar, *i. e.*, the Province of Bakhalal, lies directly in the path of a migration from the northeastern corner of Peten, where we have seen the Old Empire Maya survived the latest at Uaxactun, Nakum, Ucanal, and Benque Viejo (10.1.0.0.0) and Tikal and Flores (10.2.0.0.0) to Chichen Itza, where we will find them dedicating a temple as early as 10.2.10.0.0, only 10 years later than the closing dates in the last cities of the Peten region.

The Peabody Museum Central American Expedition of 1912, under Merwin, explored this region, and discovered a number of important new sites, Rio Beque, Ramonal, and Porvenir, and although no inscriptions were found at any of them, they probably belong to the Transitional Period of the New Empire, 10.6.0.0.0 to 11.1.0.0.0.³

The purely archæological evidence is fully as satisfactory. In 1900, Thompson found at Chichen Itza, in that part of the city called Old Chichen Itza, a lintel with the Initial Series 10.2.9.1.9 inscribed on its under side, which was assumed to have been its contemporaneous date. In 1918, however, the writer deciphered on the front of this lintel the lahuntun-ending 10.2.10.0.0 2 Ahau 13 Chen, which conforms with the usual practice of dedicating monuments, temples, etc., at even hotun-endings and may consequently be regarded as its contemporaneous date, being in fact less than a year later (331 days) than the Initial Series. Now, this date is not only the earliest contemporaneous date known at Chichen Itza, but also throughout the New Empire, and it is, moreover, only 1 lahuntun later than the closing dates of Tikal (Stela 11), Flores (Stela 1), and Seibal (Stela 1). Thus, on the chronological side, it becomes evident that the final abandonment of the Old Empire was roughly coincident with the growth of the New Empire, and it is even possible that the rise of the latter may have been partially responsible for the fall of the former.

¹ Brinton, 1882, pp. 138, 144.

² *Ibid.*, pp. 153, 158.

³ Morley, 1917a, pp. 140, 146. The writer understands this important material is now in course of publication.

This colonization of Yucatan from the southeast agrees, moreover, with a tradition gathered by Father Lizana, who wrote as early as 1601:

"They [the first Spanish priests] knew that the natives came, a part from the east [the original colonization of the country here in question], a part from the west. So in their old language they call the east by another name than which they use to-day. Now they call the east, LiKin, which amounts to saying the place from which the sun rises upon us. And the west they call ChiKin, which means the fall or the end of the sun, or rather, where it hides itself in relation to us. But in old times they called the east, 'Cenial, The Little Descent,' and the west, 'Nohenial, The Great Descent,' (the former) referring to the few people who came on the one side, and (the latter) to the great multitude who came on the other, whoever they may have been."¹

The former, the Little Descent, doubtless refers to the comparatively few people who first settled at Chichen Itza arriving from the southeast, and the latter probably refers to a more general movement into Yucatan, the Great Descent, from the southwest, Tabasco (?), which seems to have taken place during the tenth century.²

It was stated on page 457 that the migration which depopulated the region of the Old Empire was two-fold in direction; that in addition to the Maya who moved northward and colonized the peninsula of Yucatan, others moved southward and into the highlands of Guatemala, and later became the Quiché, Cakchiquel, Tzutuhil, and other related Maya tribes of historic times.

The only dates in the Maya hieroglyphic writing known from this latter region are the two Initial Series on the Quen Santo (Sacchana) stelæ found by Seler in 1895 at the Hacienda of Sacchana, in the State of Chiapas, Mexico, but which he states had been brought thither from the neighboring ruins of Quen Santo in the Department of Huehuetenango, Guatemala.³ (See plate 1.) The dates of these two monuments are 10.2.5.0.0 (Stela 1) and 10.2.10.0.0 (Stela 2), the latter being *exactly the same date* as that on the Chichen Itza lintel.

Here, indeed, is an interesting archæological condition, two monuments 600 kilometers apart, both *without* the territory occupied by the Maya during the Old Empire and both recording *precisely the same date*, which date is only 10 tuns later than the latest closing dates in Seibal and Tikal, the nearest large Old Empire cities in each case; and therefore if Yucatan (Chichen Itza) was colonized from cities in the northeastern part of Peten, such as Tikal, Uaxactun, Nakum, Naranjo, and La Honradez, for example, the highlands of Guatemala (Quen Santo) would appear to have been colonized from cities in the southern part of Peten on the upper reaches of the Pasión, Chixoy, and Lacantun Rivers, such as Seibal, Cancuen, Aguas Calientes, Altar de Sacrificios, Ocosingo, and Tzendales. (See plate 1.)

¹ Lizana, 1893, pp. 3, 4.

² Landa (1881, pp. 74, 75) mentions great numbers of Maya-speaking people immigrating into Yucatan from the south about this time, which he conjectures must have come from Chiapa, "because many words and compositions of the verbs are the same in Chiapa and in Yucatan."

³ Seler, 1902-1908, vol. II, pp. 251, 252.

We are now in possession of the most important archæological and documentary evidence bearing upon the problem of the extinction of the Old Empire civilization and have reviewed the principal hypotheses seeking to explain the reasons therefor. The writer wishes in a few closing words to outline what appears to him to be the best explanation of the facts observed, admitting, at the same time, that the evidence is as yet too insufficient to warrant final conclusions.

Probably as early as the Middle Period, the increasing difficulties of the agricultural situation, *i. e.*, the farther and farther from their homes they were obliged to go in order to find suitable new land for cultivation, coupled with the deterioration of the cleared areas nearer the cities, had already begun to prove burdensome. This must have been especially true of the older and larger cities like Copan and Tikal, which had been occupied not only for longer periods but also by larger numbers of people; also, it is possible there may have been increasingly unfavorable climatic conditions.

About the same time, according to the documentary evidence (the Books of Chilan Balam), and possibly because of this very fact, the region to the north of the Old Empire, the Province of Ziyancaan Bakhhalal was discovered. This region is only 100 to 150 kilometers north of La Honradez, the northeasternmost Old Empire city now known (see plate 1), and colonists pushing out either from there or from one of the other cities of this region in search of new agricultural lands, owing to the increasing deterioration of the lands nearer home, discovered Lake Bacalar, *i. e.*, the Province of Ziyancaan Bakhhalal, in 9.13.0.0.0 or 9.14.0.0.0. The water of the lake was sweet, the country to the west fertile, and gradually the new region became colonized.

While they were at Bakhhalal, 60 years according to the Mani manuscript (from 9.14.0.0.0 to 9.17.0.0.0 according to the writer), in the words of the native chronicles, "it occurred then that Chichen Itza was discovered."

Possibly hunting or exploring parties pushing still farther north from Bakhhalal in search of new lands discovered the two great natural wells or *cenotes* at Chichen Itza, something less than 200 kilometers farther north, and because of this abundance of sweet water, all the more remarkable for being in such a parched and generally waterless country as the whole northern half of the Yucatan Peninsula is, they settled there.

It is not to be supposed that these discoveries of new fertile lands far to the north at first attracted general attention in the Old Empire cities, but later, toward the middle of the Great Period after 9.18.0.0.0, when the writer believes the economic situation may have begun to become menacing, people's minds, particularly in the northern Peten cities, turned more and more toward these new lands, where living conditions were reported to be so easy.

We may probably imagine the priesthood as opposed to the exodus already under way, because of its heavy investment in permanent buildings, temples, and dwellings, and the rich monumental series, particu-

larly in the larger cities;¹ but during the last four katuns of the Great Period from 9.18.0.0.0 to 10.2.0.0.0, when we get the last dates, there was probably a continuous movement of the people both to the north and to the south, a great outpouring from the Old Empire cities in both directions.

Although we lack documentary evidence for this migration to the south, unless indeed the *Popol Vuh* or Sacred Book of the Quiché² and the *Annals of the Cakchiquels*³ refer to an earlier period than now appears probable, there remains the indisputable linguistic fact that the Indians of the highlands of Guatemala to-day still speak dialects of the mother Maya tongue, morphologically probably no more distant one from another than the different branches of the Romance linguistic group—modern French, Spanish, Portuguese, and Italian. And to this must be added the direct archæological evidence of the Quen Santo stelæ, not more than 200 kilometers distant from Seibal in an air-line and only 10 years later than Stela 1 at that site chronologically, and finally a large body of ceramic material showing many Old Empire designs from all over the adjacent parts of the highlands of Guatemala.

After 10.2.0.0.0 the region covered by the Old Empire was entirely abandoned, not to be reoccupied for another eight centuries, until the collapse of the New Empire about 1447, again set the Maya wandering over a large area in search of new homes for the third time within a period of 1,500 years.

Probably such a large movement of people as that of the Maya from the Old Empire region is not to be explained by any single cause, and possibly more than one of the hypotheses described may have contributed to the final result.

The writer is well aware that the time has not yet come when general problems in the Maya field can be definitely settled. Not only is the evidence still incomplete, but also the interpretation of the data at hand is in some cases open to doubt and revision. Thus, for example, such a problem as the probable cause or causes which brought about the fall and extinction of the Old Empire civilization is incapable of exact solution in the present state of knowledge, too many factors being uncertain or even unknown. The hypotheses described, on the other hand, cover in their range the different causes which have been variously suggested to account for the archæological fact, now generally recognized and already several times stated here, namely, the sudden cessation of the monumental series in the individual cities, but the gradual cessation over the area of the Old Empire as a whole.

¹ A similar situation arose in Guatemala after the great earthquake of 1773, which almost completely destroyed the capital of that country. The civil and military authorities were in favor of removing the seat of government to another valley, 25 kilometers farther east, to the present site of the capital. This step, however, was strongly opposed by the Church, because of its heavy property-holdings and investment, 43 large churches, monasteries, and convents alone, to say nothing of the many smaller buildings and elaborate equipment with which all were provided. Indeed, it was not until 3 years later, in 1776, that the new capital was formerly established in its present location, and the old capital, Antigua Guatemala, has continued to be occupied down to the present day.

² Brasseur de Bourbourg, 1861.

³ Brinton, 1885.

Always admitting the possibility of an unknown factor in the situation, it appears to the writer that some, at least, of the several hypotheses suggested in the foregoing pages must have played an important part in precipitating the exodus which the archæological evidence demands; and of these, Cook's suggestion of an agricultural collapse appears to be the most probable. Possibly operating singly, but more probably working with other stimuli, such as climatic changes, fear, and superstition (the two last always potent forces among primitive peoples), bringing in their train attendant disease, social unrest, and loss of confidence in themselves, their rulers, and their deities, these several factors may finally have brought about such an intolerable condition toward the close of the Great Period that abandonment of the whole region ultimately came to be generally accepted as the only solution for their extremity.

And here we may leave the Maya. Their history in their new homes to the north and south, their brilliant cultural recovery and renaissance, particularly in Yucatan in the eleventh, twelfth, and thirteenth centuries, the Spanish Conquest of the southern Maya under Pedro de Alvarado in 1524 and of the northern Maya under Francisco Montejo the younger in 1541, and the final extinction of the last remnant of the Maya civilization around Lake Peten Itza by Martin de Ursúa in 1697, are all chapters of another story which lie without the province of the present investigation, and which must await another occasion for adequate presentation.

APPENDIX I.

A PETROGRAPHIC DESCRIPTION OF THE MATERIAL OF THE COPAN MONUMENTS.

FRED. E. WRIGHT.

Small specimens from three monuments, Stelæ D and 3 and Altar U, were examined and found to be essentially the same in general appearance and type. In each one of these rock-masses, small inclusions of a denser, harder rock occur which differ from the host only in the fact that they are more indurated and contain more quartz. The rocks as a group are so highly altered that their original characters are difficult to decipher with certainty. They are evidently of tuffaceous origin and range in composition from dacites to andesites high in silica. The lack of ferromagnesian minerals, such as amphiboles, pyroxenes, and micas, is noteworthy. In the ground-mass, dusty areas, more or less rhombic in outline, may be seen here and there and may represent former amphiboles; but no definite proof was obtained of the presence of any one of the ferromagnesian minerals in the original rock-mass.

In general appearance the specimens are dull, porous, fine-grained rocks, pale green and yellow-green in color, mottled here and there with colored angular areas, such as abound in altered tuffaceous rocks. The clastic texture is more clearly marked in the dark-colored inclusions than in the inclosing rock-mass. At first glance these inclusions appear to be fresh, vitreous rocks containing phenocrysts of clear, glassy plagioclase and quartz; but on closer inspection with a magnifying glass, and especially in the thin section under the microscope, they are seen to be clastic in nature and not essentially different from the host, except for the greater abundance of secondary quartz. In these indurated fragments the sharply curved intersections and interstitial spaces between the glass fragments of the original tuff are well preserved and give to the rock an unusual and characteristic appearance. Many of the angular and rounded cavities are lined with a white to pale green crust of soft material which under the microscope is cryptocrystalline to microcrystalline, and weakly birefracting, with an average refringence of about 1.535. Many of the cavities contain, in addition, secondary quartz. The spherical shape of some of the cavities, 1 to 2 mm. in diameter, suggests bubbles in an original glassy lava. In the inclusions these gashes and other cavities are common and demonstrate the tuffaceous origin of the rock. In the less indurated rocks the cavities are still present, but they are not so apparent in the hand specimen because of the generally altered, dull condition of the samples, which has obliterated all contrasts.

Scattered through each specimen are clear, glassy crystals of plagioclase feldspar measuring up to 3 mm. in diameter. These crystals are developed as stocky prisms elongated along the axis 001:010; tabular development after the side pinacoid (010) is less common. The forms identified on the crystals are: (001), (010), (110), ($\bar{1}\bar{1}0$), 101. Cleavage after 001 is well developed. The feldspar sections show slight zonal structure and average in composition an albite-oligoclase of the composition Ab_6An_1 . Fine albite twinning lamellæ are common; Karlsbad twinning lamellæ were observed in a few of the feldspar sections. Many of the feldspar crystals are irregular in shape and are evidently fragments of fractured crystals. Quartz grains are less abundant than the feldspars. They occur in water-clear

grains, generally rounded in shape. Many of the primary quartz grains are corroded and embayed. Inclusions of long, needle-shaped crystals of high refringence were observed in several of the quartz sections.

A brown weathering crust was observed on one of the specimens. The junction between this crust and the adjacent interior is sharply defined; the weathered shell is more or less banded; but even in this shell the plagioclase feldspar still preserves its clear, glassy character.

Under the microscope some of the feldspar sections are more or less regular in shape, but many are irregular and corroded. They are embedded in a much altered matrix which is not easy to decipher in all its details. In each thin section angular, irregular, short lines of dark, dusty material appear in the field; these are commonly curved and resemble the fracture lines of an original tuff rich in glass and pumice fragments. These are now profoundly altered and the interstitial spaces are more or less filled with secondary material, much of which is submicroscopic in size. Some secondary quartz is present in fine veinlets and aggregates; also calcite in thin, thread-like lines. Chlorite is common and fills cracks and interstitial spaces; in some cases it appears to be an alteration product of original hornblende, but the evidence is too indefinite to be decisive. Small grains of iron oxide surrounded by a brown alteration zone are common; they are probably titaniferous magnetite.

In the ground-mass, much of the material is too fine for satisfactory identification. There is present some argillaceous material, some secondary calcite, some quartz; aggregates of radial spherulites of a colorless, weakly birefracting mineral of positive elongation and refractive index about 1.480 occur, especially near corroded plagioclase feldspars. In the ground-mass there is present an isotropic or weakly birefracting substance of refractive index about 1.460.

In view of the profound alteration of the matrix, the relatively unaltered condition of the plagioclase crystals is surprising. It appears that the glassy tuff fragments suffered rapid devitrification and subsequent alteration, whereas the primary plagioclase and quartz crystals and fragments remained unchanged, except for marginal attack and alteration.

The evidence, so far as it can be gathered from the few small specimens, points definitely toward their tuffaceous origin. The conditions which led to induration of the fragments of tuff which now appear as inclusions in the larger masses of rock can be ascertained only by field work. Both the inclusions and their host may properly be designated andesite tuffs; the presence of quartz in some of the specimens and the lack of ferromagnesian minerals indicates that the rocks are high in silica and alkalies and approach dacite tuffs in composition.

The causes which led to the profound alteration of these rocks and even the details of the changes as presented in the few specimens at hand can not be profitably discussed without further field evidence.

GEOPHYSICAL LABORATORY,
CARNEGIE INSTITUTION OF WASHINGTON.

APPENDIX II.

THE CORRELATION OF MAYA AND CHRISTIAN CHRONOLOGY.

NATURE OF THE PROBLEM.

No problem in Maya archæology has excited wider interest or provoked more general consideration than the correlation of the Maya chronological system with our own Gregorian calendar; and indeed, few problems of similar importance in any archæological field offer equal promise of ultimate exact solution.

The nature of the Maya inscriptions upon which this correlation must necessarily depend is such as to indicate that an exact alinement of the two chronologies to the very day is not only a possible but also even a probable outcome of pending investigations.

It has been frequently stated in these pages that a large part of the Maya inscriptions, indeed practically all of the deciphered glyphs, treat of the subject of time in its various manifestations, such as the lengths of the apparent revolutions of the sun, moon, and other planets around the earth, and probably also of the eclipses which the first two occasionally undergo. In fine, it appears highly probable that actual astronomical phenomena of determinable nature are recorded in the Maya inscriptions; and it only awaits the exact identification of any one of these, such as any particular solar or lunar eclipse which was visible in northern Central America during the first six centuries of the Christian Era for example, to make immediately possible an exact correlation of Maya chronology with our own Gregorian calendar.

Pending the solution of this problem by the astronomical method, which, however imminent it may be, has yet to be achieved, the writer wishes to suggest a correlation of the two chronologies based upon other data, which he believes is probably correct to within 4 months and possibly to within 49 days.

It was stated in Chapter I that Maya chronology is a highly artificial but exceedingly accurate system for measuring elapsed time, with the *day* as the basic unit of the count. The current day is given in terms of the total number of elapsed days which separate it from the starting-point of the system, a point more exactly fixed in time than the zero-point of our own calendar, *i. e.*, the birth of Christ. It finds its closest modern analogy not with our Gregorian calendar, but with our Julian Period, used by astronomers and chronologists in measuring elapsed time, the hypothetical starting-point of which is the year 4713 B. C. Indeed, the two systems are so similar that Professor R. W. Willson, of the Harvard Astronomical Department, has suggested to the writer the propriety of describing any Maya date by its corresponding Maya day number after the practice of astronomers and chronologists in designating any given date in the Gregorian calendar by its corresponding Julian day number.

As a matter of fact, the whole problem of the proper correlation of Maya and Christian chronology may be reduced to precisely this: the correct engagement of the Mayan and Julian Periods at any single point; for if it were possible to establish a single point of contact between the two, every date in Maya chronology could be transcribed into its corresponding Julian or Gregorian equivalent, and the dates on the Maya monuments would suddenly become more accurately fixed in our own chronology than any event of Old World history prior to the birth

of Christ, and this solely because of the extraordinarily exact character of the native Maya chronological system, which within itself is absolutely accurate.

Having stated the problem, let us next examine the evidence upon which the correlation here suggested is based. During the Old Empire, Maya dates were recorded in terms of their corresponding Initial Series numbers; but, as we have already seen, even before the close of the Old Empire this method had begun to give way to Period Ending dating, which, however, was only a more abbreviated form of the same system. In Initial Series dating the total number of elapsed days from the starting-point to the day recorded is given, while in Period Ending dating only the *positions* of the periods, whose ending-dates are recorded in the periods next higher, are given. These two methods, however, are but different expressions of the same system, as noted above; and as the following example will show, they are interchangeable.

Thus, the Initial Series 10.2.0.0.0 3 Ahau 3 Chen may be expressed by the following Period-Ending date: 3 Ahau 3 Chen, End of Katun 2. Or, reversing this process, 3 Ahau 3 Chen, End of Katun 2 may be expressed by its corresponding Initial Series 10.2.0.0.0 3 Ahau 3 Chen.

It will be noted in this reverse process that it is necessary to assume that the number of the current cycle was 10, but in the Old Empire the cycle-coefficient was always either 8, 9, or 10, and, as between these three, there is *never* any doubt on stylistic grounds as to which one was intended in a Period Ending date. Moreover, the record of the date upon which the specified katun ended renders it impossible for such a Period Ending to recur, fulfilling all the given conditions, until after a lapse of 18,980 katuns or about 374,153 years; so that for all practical purposes, as used in the Old Empire, Period Ending dating is as accurate as, and indeed is interchangeable with, Initial Series dating.

Coming down to the New Empire, however, a very much less exact type of Period Ending is found, although even in these cases the Initial Series intended can usually be worked out.

As used in the New Empire, in the few inscriptions that have come down to us (with but one exception),¹ only tun-ending dates appear to have been recorded. These, moreover, frequently lack the month-parts of their corresponding terminal dates, and consist only of the record of a specified tun, together with the day on which it ended. When the corresponding month-parts are not omitted, such tun-ending dates are accurate within a period of 18,980 tuns or about 18,707 years, but when they are omitted, as is usually the case, the resulting dates are only accurate within a period of 260 tuns or about 256 years.²

A natural development out of the latter for use in the manuscripts, where long historical summaries had to be kept, but still only a further abbreviation of the original system, was the *u kahlay katunob* or sequence of the katuns, in which a katun was named after the day on which it ended, as 7 Ahau, 5 Ahau, 3 Ahau, for example, and no record was made of its corresponding month-part, or more important still, of its position in the period next higher, that is the cycle. An example of this kind of count has already been given in Chapter I (page 43), where the *u kahlay katunob* will be seen to have consisted of nothing more than a series of the ending-days of the succeeding katuns accompanied by the record of the more important events, if any, which occurred in each.

Finally, and this is most important of all in the present connection, the *u kahlay katunob* are more or less accurately correlated with Christian chronology by means of several events in them, the dates of which are given in terms of both chronologies.

¹The inscription on the capstone in the outer chamber of the East Range of the Monjas Quadrangle at Uxmal. (See figure 74.)

²See Morley, 1918a, pp. 270-275.

The correlation here suggested therefore may be divided into two steps:

- (1) The correct alinement of the *u kahlay katunob* with Christian chronology.
- (2) The correct alinement of the Initial Series with the *u kahlay katunob*.

When these two points of contact have been established, the dates of the Old Empire, the Initial Series, can be reduced to terms of our own chronology, through the medium of the common equivalents afforded by the *u kahlay katunob*.¹

This, in brief, describes the method of procedure which the writer and everyone else has followed, and the different results reached by the several investigators of the problem (reviewed later), are due to the several interpretations placed upon the same evidence, chiefly the *u kahlay katunob* in the Books of Chilán Balam published by Brinton in 1882, under title of *The Maya Chronicles*.²

Unfortunately, as will appear later, these native records are more or less contradictory, especially in regard to the exact Maya equivalents, for specific days in the Christian Era, for which reason it appears hazardous to push this evidence to the point of deriving from it a correlation for which accuracy is claimed to the very day. This is attempting to read the vernier-scale of our instrument more accurately than the instrument was built to register. On the other hand, if exact correlation is not demanded, and if certain obviously contradictory dates in the Christian calendar are eliminated, and finally if we will accept approximate correlation, *i. e.*, a larger point of contact, say anywhere within a given year of the Christian Era, the writer believes satisfactory, and within these larger limits accurate, results can be obtained.

SOURCES FOR THE CORRELATION OF THE U KAHLAY KATUNOB AND CHRISTIAN CHRONOLOGY.

Taking up the first step mentioned above, *i. e.*, the alinement of the *u kahlay katunob* with Christian chronology, let us first examine the original sources upon which this part of our correlation must be based. The writer finds twelve authorities of the sixteenth, seventeenth, and eighteenth centuries, nine native and three Spanish, which may be utilized in this connection as follows, arranged in chronological order:

- I. *The Chronicle of Chacxulubchen*, written about 1562 by Nakuk Pech, the native Maya chief of that town.
- II. *Relation of the Things of Yucatan*, written not later than 1566 and not earlier than the close of 1561 by Diego de Landa, fourth Bishop of Yucatan.
- III. *The u kahlay katunob from the Book of Chilán Balam of Mani*, copied not later than 1595 by some native Maya.
- IV. *The u kahlay katunob from the Book of Chilán Balam of Tizimin*, copied about the close of the sixteenth century, also by a native Maya.
- V. *Page 66 of the Chronicle of Oxkutzcab*, containing entries for 1532-1545, copied from "an ancient book," on May 29, 1685, by Don Juan Xiu.³ (See figure 72.)
- VI. *History of Yucatan*, written in 1656 by Diego de Cogolludo, twelfth Bishop of Yucatan, and published in 1688.
- VII. *An ancient Indian painting*, bearing the date 1536 figured in the preceding. (See figure 73.)
- VIII. *History of the Conquest of the Province of the Itza*, written after 1697 and published in 1701 by Juan de Villagutierre Sotomayor.

¹The correlation of Maya and Christian chronology suggested in this Appendix was first proposed by the writer in 1909 at the Baltimore meeting of the Archaeological Institute of America (Morley, 1910a, p. 193), when it was announced that Stela 9 at Copán (9.6.10.0.0) dated from 284 to 304 A. D., depending upon which tun of Katun 13 Ahau 8 Kankin coincided with the year 1536. Subsequent investigations, described in this Appendix, have convinced the writer that it was the closing tun of this katun which coincided with the year 1536, and that Stela 9 at Copán therefore dates from 304 A. D.

²See Brinton, 1882.

³This is page 66 in the Gates pagination, or page 80 in the Breton pagination of this manuscript. With a few minor changes the Gates pagination appears to be the better of the two.

- * IX. *The first u kahlay katunob from the Book of Chilan Balam of Chumayel*, copied in 1782 by Juan Josef Hoil.
- X. *The second u kahlay katunob from the Book of Chilan Balam of Chumayel*, copied in 1782 by Juan Josef Hoil.
- XI. *The third u kahlay katunob from the Book of Chilan Balam of Chumayel*, copied in 1782 by Juan Josef Hoil.
- XII. *Page 85 of the Book of Chilan Balam of Chumayel*, copied in 1782 by Juan Josef Hoil.¹

As used hereinafter, these several authorities will be cited under the corresponding Roman numerals above.

Concerning the relative merits of these sources, in matters pertaining to the native chronology, in general the writer places greater confidence in the statements of the native writers than in those of the Spanish historians (II, VI, and VIII), and naturally the earlier the authority the more likely he is to be correct. Most trustworthy of all appears to be I. Nakuk Pech was a member of the noble house of Pech of Cumkal, and was himself the hereditary *batab* or chief of Chacxulubchen. He speaks of having been an adult in 1519, and he must have been of mature years during the period of the Spanish Conquest, in which he took no small part, aiding the Spaniards whenever possible. He thus grew up under the native régime, receiving his education, which must have been of the best, since he was to become chief one day, at the hands of the Maya priesthood *before* the Spanish Conquest, and therefore while the native institutions *were still flourishing*. In short, he possessed first-hand knowledge of what he wrote, and his statements, especially those regarding the native calendar and chronology, are to be accepted with greater confidence probably than those of any of the other authorities cited. Even in matters relating to Spanish history, such as the first appearance of whites in the peninsula (the wrecking of Gerónimo de Aguilar and his companions on the east coast in 1511), the arrival of Cortés at Cozumel on February 28, 1519, the fall of Tenochtitlan on August 13, 1521, the first arrival of the Spaniards at Merida in 1541, and the foundation of the city on January 6, 1542, Pech gives the correct year, and in the case of the fall of Tenochtitlan, even the correct day. Such accuracy on the part of a native in regard to Spanish events shows that he was an exceedingly careful writer, and gives to any statements he may make about his own calendar the highest degree of reliability.²

Of the second source, Bishop Landa's Relation, little further need be said here, his work having already been described in Chapter I (pages 28-30), as being the *sine qua non* of our knowledge of Maya chronology. It was composed prior to 1566,³ but not before the close of 1561,⁴ although some of the material may have been

¹This is page 85 of the Gordon reproduction of this manuscript (see Gordon, 1913), or the face of folio 46 of the original.

²Unfortunately the original Pech manuscript has disappeared. Gates is of the opinion that the text in Don Rafael de Regil's collection in Merida was only a copy of the original made by Pío Pérez. In 1918 the eminent Yucatecan scholar, Don Juan Martínez y Hernández, found a duplicate chronicle by Ah Naum Pech, mentioned by Nakuk Pech as being the head of the family in his time, which he assures the writer is practically a word-for-word transcription of the Nakuk Pech chronicle, with only the name of the author changed. See Brinton, 1882, pp. 189-259, for the text and translation of the Nakuk Pech version.

³The title of the copy of Landa's manuscript in the archives of the Royal Academy of History at Madrid bears this date: "Relation of the things of Yucatan taken from what Father Diego de Landa of the Order of San Francisco wrote. MDLXVI."

⁴Landa mentions in his Relation (1881, pp. 79, 80, 103) that he held an *auto da fé* at Mani, where many idols, hieroglyphic manuscripts, etc., were burned, and Cogolludo fixes the date of this event as having taken place after September 13, 1561, and before the early part of August 1562. See Cogolludo, 1688, pp. 308-310 and 322. Brinton says this event took place in 1562 (Brinton, 1882, p. 90). Shortly after his quarrel with Bishop Toral in 1562, Landa returned to Spain, where he was tried in 1565, and it therefore seems most probable that he wrote his Relation at some Franciscan establishment in Spain in 1563-1565, while he was waiting for his trial.

gathered as early as 1553.¹ One of his chief informants, he tells us,² was that Nachi Cocom, *halach vinic* of Sotuta, who figures so sanguinarily in connection with the murder of Napot Xiu at Oztamal in 1536, to be described later (Event C). Unfortunately, Landa gives little information as to the correlation of the two chronologies, and even his single statement bearing upon this point is probably incorrect. He does, however, give the correct version of Event C, as will appear later, which indeed must have been a matter of common knowledge at that time, having happened only 13 years before he first came to Yucatan in 1549.³

The third source, the *u kahlay katunob* from the Book of Chilán Balam of Mani, was compiled not later than 1595, according to internal evidence in the text.⁴ This chronicle and the other four *u kahlay katunob* (IV, IX, X, and XI), the writer believes were *copied* by native Maya, perhaps directly from Maya historical codices, which have since been either lost or destroyed.

In spite of the fact that both III and IV have several lacunæ in their series of the katuns, in essential points they agree remarkably with IX and X, and occasionally even with XI, the least complete of them all; and they constitute, in the writer's opinion, perfectly reliable sources for the reconstruction of the main aspects of New Empire history.

The fourth source, the *u kahlay katunob* from the Book of Chilán Balam of Tizimin, so closely resembles III, not only in phraseology but also in the positions and lengths of its several lacunæ, as to indicate that both must have been copied from the same original, and, as already noted, probably about the same time.⁵ This close similarity is all the more remarkable in view of the fact that III is said to have come from Mani,⁶ in northwestern Yucatan, to which the Xiu removed after the abandonment of Uxmal in the middle of the fifteenth century, and IV from Tizimin in northeastern Yucatan, in the territory of the Itza.

There has been some attempt in IV to fill the later lacunæ in its series, since this chronicle agrees closely with III down to the fall of Chichén Itza and the end of the League of Mayapan, but after these events several katuns have been interpolated, which make a duplication in its series, some sections being recorded twice. A case in point is the interpolation of 13 katuns (from Katun 11 Ahau to Katun 11 Ahau), after the Katun 2 Ahau in which the Spaniards are said to have

¹The specimen Maya year which Landa gives (1881, pp. 90-102) begins with the day 12 Kan (*ibid.*, p. 97) which fell in 1553, according to almost all the early sources. See pages 495-497.

²Landa, 1881, p. 76.

³Cogolludo, 1688, p. 268.

⁴See Brinton, 1882, p. 70.

⁵See *ibid.*, p. 136.

⁶The Mani manuscript is first mentioned by Stephens, who says Pío Pérez furnished him with a copy of "a fragment of a Maya manuscript, written from memory by an Indian, at some time not designated, and entitled: Principal epochs of the ancient history of Yucatan." (1841, vol. II, pp. 278-280.) Brinton, who had access to Berendt's notes, says the latter states that the *u kahlay katunob* published by Stephens was from a manuscript in the possession of a native schoolmaster of Mani named Balam. He quotes Berendt as follows on this point: "The historical data which Stephens published in the Appendix of his work were extracted from such a book of Chilán Balam in the possession of an Indian of Mani, master of the school, who, because he had the same name Balam, pretended to be a descendant of the priest of the Maya, who gave his name to this class of writings." (*Chilán Balam, Artículos y Fragmentos en Lengua Maya*. MSS. Advertencia, p. VII. See Brinton, 1882, p. 91, note 1.)

Finally, Brinton gives an extract from the Codice Pérez, a mass of material copied by Pío Pérez from various sources, among others this *u kahlay katunob*, which states that this chronicle was in the possession of the master of the chapel at Mani: "Here ends the book entitled Chilambalam [from which III was extracted] which is preserved in the town of Mani in the possession of the master of the chapel." (*Ibid.*, same page and note.)

Unfortunately, this most important manuscript has not been seen or heard of since the War of the Castes, which devastated Yucatan in 1847 and 1848, and the writer greatly fears it was destroyed at that time. It is not known surely whether a copy of it may be in existence or not.

first reached Yucatan (Event A), and for which not a single event is recorded, the whole being merely a repetition of the previous 13 katuns. With the other *u kahlay katunob* to check by, however, especially IX, such repetitions may be eliminated, and both III and IV can be brought into satisfactory agreement with IX and X.¹

The fifth source is page 66 from the Chronicle of Oxkutzcab, which is a collection of titles, baptismal certificates, and *probanzas de hidalguia* (proofs of nobility) family papers, etc., of the Xiu family, covering the period from 1608 to 1817, which remained in the possession of the family down to within the past two decades, and which is now in the Peabody Museum at Cambridge, Massachusetts.²

¹The Tizimin manuscript along with the Chumayel, Calkini, Kaua and others was copied by Berendt in 1868. After Berendt's death his collection was acquired by Brinton, and most of the latter's investigations in this field were based upon it. Bishop Carrillo y Ancona of Merida, says that the Tizimin manuscript was in his library in 1870. See Carrillo y Ancona, 1870, p. 128; also Brinton, 1882, p. 136. And while still in his possession in 1887, Teobert Maler made photographic copies of the Tizimin, Chumayel, Calkini, Kaua, and other manuscripts. A complete set of these prints, mounted and annotated by Maler, is now in the Gates collection. After Carrillo's death the Tizimin manuscript next came to light in the possession of the lawyer who administered his estate, Don Ricardo Figueroa of Merida. When the writer was in Yucatan in 1913 he examined the Figueroa collection several times, but did not see it, although he was told that it was still in Figueroa's possession at that time; however, it has never been seen since, and its present whereabouts are unknown. The writer was extremely fortunate in obtaining a copy of this manuscript in Merida in 1913, which Gates believes to be the work of an educated Maya, written about 30 to 40 years ago. On the front page is copied the following notation:

"The cura who subscribes himself gives this book to Señor D. Crescencio Carrillo Pbro. for the use which he wishes to give it. Tizimin, March 23, 1870. Manuel Luciano Pérez. Rubric.

Chilan Balam
'Codice Tizimin'

"From the collection of the Pbro. Cres. Carrillo Ancona. Rubric.

Note

"This Codex is also called 'anonymous' inasmuch as the name of the Indian who wrote it does not appear. Rubric."

This copy is now in the Gates collection. It is written in a clear, fine hand, exceedingly legible throughout, and is perhaps the best copy of the Tizimin manuscript now extant. The above note indicates that it was in the possession of the Cura of Tizimin prior to March 23, 1870, and it doubtless emanates from that vicinity.

²This manuscript was obtained from Bernabe Xiu (1839-1911), or someone close to him, by Thompson in 1900 or 1901, and is now in the Peabody Museum. This Bernabe Xiu in all probability was a lineal descendant in the fifteenth generation of the Napot Xiu, who met such a violent death at Otzmal in 1536 (see Event C), and thus was descended from the former royal house of Uxmal.

When the writer was at Oxkutzcab, Yucatan, in 1918, he obtained from Doña Felipa Xiu, the youngest daughter of Bernabe Xiu, genealogical data of the family from 1918 back to the close of the eighteenth century, and through recent collaboration with Mr. William Gates, it has been possible to connect the modern representatives of the family with the genealogical tree on one of the pages of the Chronicle of Oxkutzcab. This page is unfortunately frayed at the edges, but in the lower left-hand margin can clearly be distinguished a part of the day-sign Ahau, and below this to the right there is a black dot and just below this, the word "katun." The coefficient here can only have been 2, 3, or 4, and of these, 3 is the only one historically probable, if not indeed possible. In the correlation of the *u kahlay katunob* and Christian chronology suggested here, this can hardly have been other than the Katun 3 Ahau, which ended in 1635, which agrees well with the probable date of authorship of this part of the tree, as will appear below.

The four generations at the left of the tree and also the Katun 3 Ahau just mentioned were probably added in 1635, nearly a century after the main part of the tree was drawn (1550), by Don Juan Xiu, born about 1622, who succeeded to the headship of the family in 1640, and who was living as late as 1689. His is the latest name on the tree, and, ingeniously enough, as if to indicate his authorship of these later additions, a hand points to his name.

On the basis of four generations to a century, and the known dates of birth of the heads of the Xiu family during the seventeenth century, it is evident that the tree begins with the Tutul Xiu born about 1397, the last *halach vinic* to rule at Uxmal, who led the Maya chieftains against the Cocom of Mayapan in Katun 8 Ahau (about 1447) and destroyed their power. As a result of this victory, the largest cities were all abandoned and the Xiu themselves, presumably under this same individual, moved their capital to Mani. This break in the Xiu family history supplies the reason why at a later date, about 1550 (the generation contemporary with the Spanish Conquest is the last complete one, showing that the main part of the tree was drawn about that time), when the tree was made to establish their nobility and right to exemption from taxation, granted by the Spanish Crown to members of the native ruling families, their descent was traced only from the first member of the family who ruled at Mani, rather than from some earlier ancestor at Uxmal.

From this Tutul Xiu, born about 1397, down to the little Dionisio Xiu, whom the writer saw playing on the mud floor of a thatched hut near Ticul, Yucatan, as a child of 3 in 1918, is a total of 22 generations.

The only document of this collection which concerns us here, page 66, is exactly dated by the following colophon at the bottom (see figure 72):

"Now I, on May 29, 1685, have copied this from an ancient book, that is characters by name Anares. I, Don Jhoan Xiu."

1534 añõs pax u cak tu men ma ya cin lae lae chil hab 1534 añõs
 he tun tu vac lae tun yax hine kox kan akuc hab tu h
 a hau he tu tu vac re yax hine 1535 añõs vac tu luc ag
 1536 tun re pop
 he tun tu bu luc re pop ces añõs vac hix aguc tu hunte pop ox hau
 1537 — tu vac re yax hine 1537 añõs vac ac tu tun re pop cin o
 pul haob re o male he k laob lae ak tun tu tul xim ye tel ag ciga
 na pucchi ye. na may ce ye. na may tun ye. ag men e van ha
 vinicob re ma uie ag pul haob tu che gen y tza in ci he v pas
 be na hau uech na pot covoh tu la tun hi cip la ha a hab tu he
 tun tu ca re yax hine bay bin ha he bal
 1538 añõs bo lo kan aguc hau tu tun re pop vchi ag y kah v
 bin tag ci mil lae vac a hau he tun tu vac lae tun xule
 1539 añõs la tun tu luc tu tun re pop can a hau he tun tu bu lu
 re xule
 1540 añõs bu luc hix tu tun re pop. ox la tun a hau he tun tu vac
 1541 añõs lag ca bil ca vac tu tun re pop bo lon a hau he tun tu
 ca re xule
 1542 añõs ox la tun tu tun tu tun re pop. vhe ci cag espano resob
 ti koo cag ci ob yax hoppi pa ra no be tu men ag man ob y et
 v pro bin ci a il ho a hau tu vac lagun re ceec
 1543 añõs tun tu luc tu tun re pop cin ci ob ag vi dom tun ob tu men
 v ka tun es payo resob he v capi ran nile alonso lopes lagun
 tun a hau tu tu bu luc re ceec ca lix v tun re pop
 1544 añõs laguna hau tu va re ceec
 1545 añõs ox laguna vac tu tun re pop hoppi x. po tiano il tun men
 fray te co b yax ti cag lae he v ka ba pa ore il lo b lae fray
 Luis vi llapan do fray or ego de de har fray ju de papuer ta
 fray me chor de be na ben re fray ju de ferre va fray angel
 poco b tok v he sab re ti cag ti ho
 vac a hau he tun tu tun re ceec
 he le len 29 de mayo de 1685 añõs tun ho ag v ce ben tun he k lae
 Calac re reg v kaba Anares tence n don
 +
 D J oax xiu #

FIG. 72—Page 66 of the Chronicle of Oxkutzcab.

Again we have a native source of the greatest value, copied by a member of the most important native family in Yucatan at the time of the conquest, namely, the Xiu, from "an ancient book" in "characters by name Anares." In *Anares* we can hardly fail to see the word "*analtehes*," which Villagutierre uses less than 15 years later (1701) to describe the hieroglyphic manuscripts of Canek, the last independent Mayan ruler: "Because their king (Canek) had read it in his *analtehes*, they had knowledge of the provinces of Yucatan, and of the fact that their ancestors had formerly come from them (*analtehes* or histories being one and the same thing)."¹ And in "characters" (Spanish *caracteres*) we have precisely the same word, which Landa, Lizana, and Ponce use to describe the hieroglyphics themselves.²

This evidence is so convincing that the writer believes the "ancient book" from which Don Juan Xiu copied the entries on page 66 of the Chronicle of Oxtutzcab on May 29, 1685, was nothing less than a hieroglyphic manuscript, in short a codex, and that his copy thereof may be regarded as an original source of the highest order of credibility.

The sixth source, Cogolludo's *History of Yucatan*, contains no material for correlating the *u kahlay katunob* with Christian chronology. It gives, however, a full account of the history of the Roman Catholic Church in Yucatan during the first century of the Spanish régime, and is particularly complete in regard to the activities of the friars. Its especial importance in the present connection lies in the fact that it fixes the dates in Christian chronology of Event C (the death of Napot Xiu), Event D (the foundation of Merida), Event E (the arrival of Bishop Toral in Yucatan), and Event F (the death of Bishop Landa), which the native authorities give in terms of their own chronology in the *u kahlay katunob*.

Molina Solis says Cogolludo wrote his history in 1656, although it was not published until 1688 in Madrid,³ and we may doubtless assume that his information as to these early events of Spanish history in Yucatan is substantially correct.

The seventh source is inseparable from the preceding, since it was published therein, and is in fact the only illustration the book contains.⁴ Fortunately we have independent corroboration of its existence by Stephens in 1841. It is an old Indian painting (see figure 73) which, according to Cogolludo's interpretation, sets forth the death of Napot Xiu at Oztamal. In the page facing this plate the Bishop states that the original painting had the year 1536 on it, although he tries to prove this is an error for 1541.⁵ This painting shows a circle of 13 human heads with

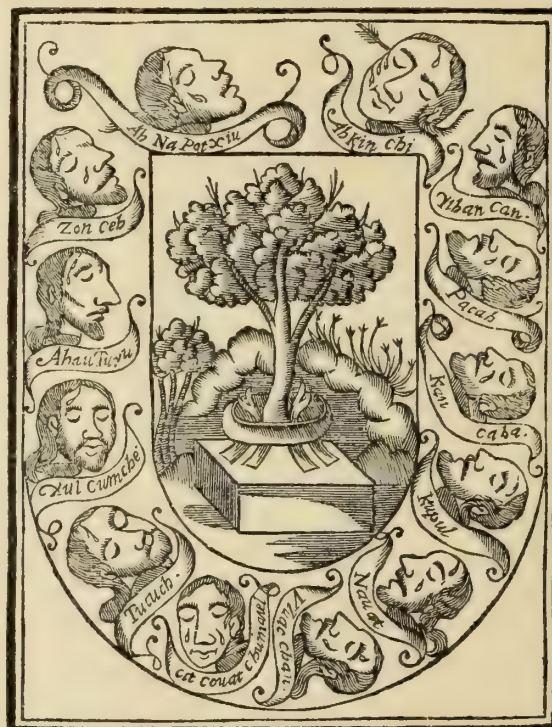


FIG. 73.—Representation of a Katun-wheel (?) on page 133 of Bishop Cogolludo's *Historia de Yucathan*.

¹Villagutierre Sotomayor, 1701, p. 353.

²Landa, 1881, p. 103; Lizana, 1893, p. 3; and Ponce, 1872, tom. II, p. 392.

³Molina Solis, 1904, p. 66. On page 127 of his history, Cogolludo speaks of "how I went this year of 1655 personally" to Campeche for the purpose of verifying the date of its foundation.

⁴Cogolludo, 1688, p. 133.

⁵*Ibid.*, p. 132.

the eyes closed, a name being written below each, that of Napot Xiu being at the top on the left. The thirteenth head, counting sinistrally from Napot Xiu, that of Ah Kin Chi, is slightly different from the others. Although the eyes are closed, an arrow also pierces it (see figure 73). This, Cogolludo explains as indicating that the life of one of the Xiu envoys, this Ah Kin Chi, was spared so that he might carry the tidings of the massacre back to Mani, although he was first blinded by having his eyes pierced with an arrow. Finally, within the circle, according to Stephens, is the Tree of Otzmal, where the massacre is said to have taken place. As will appear later under Event C, a somewhat different interpretation of this painting is more probable here.

Fortunately, when Stephens was at Mani in 1841, the original was still in existence:

"Albino had inquired of the *cacique* for the ancient relics of which we had heard accounts, and the Indians brought a copy of Cogolludo, wrapped up and treasured with great care in the *casa real*. This did not astonish us much, and they opened the book, and pointed out a picture, the only one in it, being a representation of the murder of the ambassadors of Tutul Xiu; and while we were looking at it they brought out and unrolled on the floor an old painting on cotton cloth, being the original from which Cogolludo had the engraving made. The design was a coat of arms, bordered with the heads of the murdered ambassadors, one of which has an arrow fixed in the temple, intended to represent the ambassador who had his eyes put out with this weapon. In the center is a tree growing out of a box, representing the sapote tree at Zotuta, under which the murder was committed, and which the Indians say is still standing. This tree I shall have occasion to mention again hereafter. The painting had evidently been executed by an Indian, and probably very near the time of the occurrence which it was intended to commemorate. Cogolludo refers to it as an interesting and ancient relic in his time, and, of course, it is much more so now. It is an object of great reverence among the Indians of Mani."¹

In this ancient painting we again have a native and probably contemporaneous source of highest credibility, and although in Cogolludo's engraving of it the year 1536 is omitted, his calling attention thereto in the accompanying text as an error on the part of the native painter serves to associate that date with the death of Napot Xiu in an unusually convincing manner.

The eighth source, Villagutierre Sotomayor's *History of the Conquest of the Province of the Itza*, written between 1697 and 1701, contains but a single item of importance in the present connection; but this is no less than the direct statement that 1618, the year of Father Fuensalida's visit to Tayasal, the island capital of the Itza in Lake Peten Itza, occurred in a Katun 3 Ahau.²

This is particularly significant because, as will appear later, although the Itza had migrated from Yucatan two and a half centuries before 1697, their chronology was still in agreement with that prevalent in Yucatan down to and even after the Spanish Conquest a century and a half earlier. This source also agrees with III, IV, IX, and XI in placing the fall of Mayapan in Katun 8 Ahau.³

Our remaining sources, IX, X, XI, and XII, the three *u kahlay katunob* and page 85 from the Book of Chilan Balam of Chumayel, may best be compared together. All four were copied by Juan Josef Hoil of the village of Chumayel, 24 kilometers east of Mani, about 1782. Page 81 of this manuscript shows Hoil's signature and the date January 20, 1782. They are doubtless redactions of much earlier originals now either lost or destroyed.

The first *u kahlay katunob* from the Chumayel manuscript is, in the writer's opinion, much the best one of the five that have come down to us, since it is the only one in which the sequence of the katuns is absolutely without a single lacuna from beginning to end—an uninterrupted series of 61 katuns from the discovery of

¹Stephens, 1843, vol. II, pp. 260, 261.

²Villagutierre Sotomayor, 1701, pp. 83, 84, 105, 106.

³*Ibid.*, pp. 105, 106.

Chichen Itza (said to have taken place in a Katun 6 Ahau), down to a Katun 3 Ahau, nearly a century after the Spanish Conquest, and thus it presents an unbroken section of New Empire history for more than 12 centuries.¹

Although it does not reach as far back as the Mani and Tizimin *u kahlay katunob* by something like 275 years, it nevertheless begins with the earliest event of New Empire history, the discovery of Chichen Itza (some time between 432 to 452 A.D. in the correlation of the *u kahlay katunob* and Christian chronology suggested here), and unlike the other four, once started it continues without a break right down to and past the time of the Spanish Conquest.

This chronicle is our most trustworthy authority for New Empire history, and it has proved of invaluable aid in checking up the lacunæ and repetitions in III and IV, and in bringing them into agreement with it. It is not quite so detailed as III and IV, but its chief value lies in the continuity of its sequence of katuns, and it is no exaggeration to say that without it there would be no single *u kahlay katunob* in which entire confidence could be placed. It is preceded by the following heading:

"This is the record of the count of the katuns from when took place the discovery of Chichen Itza; this is written for the town in order that it may be known by whoever wishes to know as to the counting of the katuns."²

In spite of the fact that it emanates from Xiu territory (Chumayel), it is clearly an Itza chronicle, beginning with the discovery of the site of the Itza capital, and mentioning "the men of the Itza" or "those of Itza" five different times, and the Xiu only once, and that at the very end, *i. e.*, in the entry recording the death of their ruler Napot Xiu in 1536.

In comparing the relative value of this *u kahlay katunob* with the others, the writer gives it most weight of all. It lacks the mythological opening entry of III. It makes no mention of the Xiu, who probably did not reach Yucatan until 500 years after the discovery of Chichen Itza. And finally it presents an unbroken history of the first-comers into the peninsula, namely, the Itza, down to the time of the Spanish Conquest. In short, as noted above, it is our most reliable original source for the reconstruction of New Empire history.

The second *u kahlay katunob* from the Book of Chilán Balam of Chumayel is again an Itza record. It is prefaced with the following title:

"The Record of the Katuns by the men of Itza called the Maya Katuns."³

It does not begin so early even as IX, and, moreover, is confused in the order and position of the earlier events; for example, ascribing the plot of Hunnac Ceel to a Katun 5 Ahau instead of a Katun 8 Ahau, and placing the abandonment of Chakanputun a century after the plot of Hunnac Ceel, whereas III, IV, and IX all agree that this event took place two and a half centuries before that plot.

It has, however, a peculiar value not possessed by any of the others. It gives not only the katuns in which Napot Xiu died, the Spaniards arrived, and Bishop Toral arrived, but also the particular tuns as well. If these are correct, or, as the writer believes, not more than a year out of the way, they constitute an invaluable check on the correlation of the two chronologies, limiting the margin of error, when taken into consideration with the other events to be described, to less than one year.

¹By a curious error, Brinton omits the Katun 8 Ahau in which Chichen Itza was first abandoned, assigning that event to the katun next preceding, Katun 10 Ahau (1882, p. 153). Gordon, in his reproduction of the text, corrects this error in his preface (1913, pp. 8, 9), and reference to plate 74 of that reproduction will show that the original manuscript has the Katun 8 Ahau which Brinton omits.

²Brinton, 1882, p. 158. The translations from the *u kahlay katunob* in this Appendix are chiefly those of Brinton, but many minor changes have been made and a few interpolations introduced to clarify the sense of the original Maya. The corresponding Brinton references are given in all cases.

³*Ibid.*, p. 169.

The third *u kahlay katunob* from the Book of Chilán Balam of Chumayel is the least serviceable of all of the native chronicles. It is, in fact, not a series of consecutive katuns at all, but an alternating series of Katuns 4 Ahau and Katuns 13 Ahau; only in the concluding paragraph are any other katuns mentioned, and these are not in order. This source has little value for the reconstruction of Maya history.¹

HISTORICAL EVENTS UPON WHICH THE CORRELATION OF THE U KAHLAY KATUNOB AND CHRISTIAN CHRONOLOGY IS BASED.

Having examined the source material, let us next consider the several events upon which the correlation of the *u kahlay katunob* and Christian chronology must be based, always bearing in mind that the more detailed the information is in the native sources, the greater are the resulting discrepancies, and that it is only in the larger points of contact, *i. e.*, the katuns, that we get really striking agreements all along the line.

The writer finds in the foregoing sources seven events which are recorded in terms of both chronologies as follows:

- (A) The first appearance of the Spaniards in Yucatan, which was the wreck of Gerónimo Aguilar and his companions on the eastern coast of the peninsula in 1511. (I, II, III, and IV.)
- (B) The statement that a katun ended in 1517, and the implication that it was a Katun 2 Ahau. (I.)
- (C) The massacre of Napot Xiu and other western Maya chieftains at Otmal in 1536. (II, III, IV, V, VI, VII, IX, X, and XII.)
- (D) The final pacification of Yucatan in 1541, and the foundation of Merida on January 6, 1542.² (I, II, III, IV, V, VI, IX, X, XI, and XII.)
- (E) The arrival of the third bishop, Francisco Toral, in Yucatan between August 1 and August 15, 1562, which the writer believes signified to the native mind the official beginning of Christianity. (I, II, III, IV, VI, IX, X.)
- (F) The death of the fourth bishop, Diego de Landa, on April 29, 1579. (III, IV, VI, IX, and X.)
- (G) The statement that the year 1618 fell in a Katun 3 Ahau. (VIII.)

EVENT A.

The date of this event is fixed in Christian chronology by I and II as follows:

"The year in which first came our Lords the Spaniards here to this land was the year 1511."³ (I.)

"And the year the first foreigners came here to the Land of the Cupuls was the year 1511. In former times no one saw Spanish foreigners, not until Gerónimo de Aguilar was captured by the natives of Cozumel."⁴ (I.)

"The first Spaniards who landed in Yucatan, as they say, were Gerónimo de Aguilar, a native of Ecija, and his companions, who in the year 1511, in the turmoil in Darien on account of the dissensions between Diego de Nicuesa and Vasco Nuñez de Balboa, followed

¹The Book of Chilán Balam of Chumayel is first mentioned by Brinton (1882, p. 152) as being in the possession of Bishop Carrillo y Ancona. The text Brinton published was the copy made by Berendt in 1868. After the death of Bishop Carrillo y Ancona the original text appeared in the possession of the Bishop's lawyer, Don Ricardo Figueroa, who also had the Tizimin, Kaua, and Ixil manuscripts. Through the kindness of Don Audomaro Molina of Merida, Gordon was permitted to bring the original back to Philadelphia in 1910, where a photographic copy was made which was published in 1913. See Gordon, 1913. The original was subsequently returned to Figueroa, in whose house the writer saw it in 1913. It was removed to the Cepeda library facing the Parque Hidalgo in Merida in 1915 for safe-keeping, but when the writer visited Yucatan in 1918 he was told that it had disappeared from the library and that its present whereabouts were unknown. In view of its doubtful fate, it is nothing short of providential that two photographic copies of it exist, the one made by Maler in 1887, a copy of which is now in the Gates collection, and the other made by Gordon in 1910.

²All the Christian dates throughout this Appendix are Old Style, even including those subsequent to 1582, when the Gregorian Calendar was first introduced.

³Brinton, 1882, p. 216.

⁴*Ibid.*, p. 226.

Valdivia, who went in a caravel to Santo Domingo to give account to the admiral and governor of what was happening, and to carry 20,000 ducats of the king. As this caravel was approaching Jamaica, it sunk into the depths which they call Viboras, where it was lost, so that there did not escape more than 20 men, who with Valdivia entered a small boat without sails, and only supplied with some bad oars. And without food of any kind, they went for 13 days on the sea; after deaths by hunger, almost half arrived on the coast of Yucatan at a province which they call Maya, which in the language of Yucatan is called Mayathan, that is to say, the language of the Maya."¹ (II.)

Event A is fixed in the *u kahlay katunob* by III as follows:

"[Katun] 2 Ahau: during this year the Spaniards first passed, and first came to this land, the province of Yucatan."² (III.)

And if we could be sure that Valdivia and his companions introduced the small-pox into Yucatan when they came in 1511, which is not at all unlikely, IV and IX could be counted upon as additional sources of corroboration:

"[Katun] 2 Ahau; the small-pox took place."³ (IV.)

"[Katun] 2 Ahau; the small-pox broke out."⁴ (IX.)

Even without IV and IX, however, I, II, and III, fix Event A in both chronologies, and it may be accepted without reservation that the year 1511 fell in a Katun 2 Ahau.

EVENT B.

The next event, or more properly speaking two events, is mentioned only by one source (I), but in two different and mutually corroboratory passages, one at the beginning of the chronicle and the other about halfway through. In the first passage it is stated that an unnamed katun came to an end in 1517:

"Thus the land was discovered by Aguilar, who was eaten by Ah Naum Ah Pat at Cuzamil⁵ in the year 1517. In this year the katun ended, and then ended the putting in place of the town stone, for at each twentieth tun they came to place the town stones, formerly, when the Spaniards had not yet come to Cuzamil, to this land; since the Spaniards came it has ceased to be done."⁶

Although the particular katun which came to an end in 1517 is not specified above, this information is given, at least inferentially, in the opening line of this chronicle:

"The fifth division [marker] of Katun 11 Ahau was placed when the Spaniards arrived and settled the city of Merida."⁷

And in still a third passage the correct date for this event is given in Christian chronology:

". . . . the third time they arrived they settled permanently, in the year 1542 they settled permanently in the territory of Merida, 13 Kan being the year-bearer according to the Maya reckoning."⁸

In the first quotation we are told directly that a katun ended in 1517, and in the second, information is given which indicates that this could only have been a Katun 2 Ahau. Let us examine the second passage more closely.

This states that the fifth division, or five divisions, of Katun 11 Ahau had been placed, that is, completed according to the Maya conception of time, when Merida was founded, which event a third passage then fixes as having occurred in 1542. Now, no matter whether *ho* be rendered by the ordinal fifth or the cardinal five, the

¹Landa, 1881, p. 72.

²Brinton, 1882, p. 103.

³*Ibid.*, p. 148.

⁴*Ibid.*, p. 161.

⁵This is one of Nakuk Pech's very rare errors. Aguilar was not eaten at Cozumel in 1517, but was rescued by Cortés in 1519. Some of his companions, however, met this fate in 1511 or 1512.

⁶Brinton, *op. cit.*, pp. 226, 227.

⁷*Ibid.*, p. 216.

⁸*Ibid.*, p. 228.

only katun which could have ended in 1517 and still agree with these conditions is a Katun 2 Ahau.¹

But we may make an even closer correlation from these data than the above. As will be seen under Event D, Merida was founded on January 6, 1542, or, expressed decimally, in 1542.016.² Now, if 5 tuns (4.928 years) of Katun 11 Ahau had been placed, *i. e.*, completed, before Merida was founded, which the writer believes is the correct interpretation of the second passage above, Katun 13 Ahau must have ended some time between 1536.102 and 1537.086 in order to have Event D (1542.016), fall in the *sixth tun* of Katun 11 Ahau at all.

But, on the other hand, we can not make the ending of Katun 13 Ahau any *later* than 1537.712 or the previous katun-ending will not fall in 1517, as stated in the first passage above, but in 1518; and similarly, if we make the ending of Katun 13 Ahau any *earlier* than 1536.713, it will not fall in 1517 as stated, but in 1516.

Combining these two sets of limits, therefore, we will find that Katun 13 Ahau can not have ended any *earlier* than 1536.713 and still agree with the *first quotation* or any *later* than 1537.086 and still agree with the *second quotation*, which reduces our correlation of the two chronologies under Event B alone to within 5 months, which agrees, moreover, with Event A as far as the latter goes.

¹Brinton through a misconception as to the meaning of the word *tzuc* (here translated division and assumed to have been synonymous with *tun*), was led into a curious error in the second quotation above. He believed *tzuc* was a period composed of 4 years, and on this basis concluded that the Spaniards first arrived at Merida at the close of Katun 11 Ahau, *i. e.*, 5×4 years = 20 years, an event which took place in July 1541, although the city was not formally established until 6 months later. On the basis of this conclusion, and the fact that a katun is also said to have ended in 1517, he is compelled to assume that a katun was 24 years long. This is, of course, incorrect, and Brinton's error arose through his mistake as to the meaning of the word *tzuc* in the opening line of the chronicle.

The Motul dictionary gives a number of meanings for this word: "A tuft or queue of hairs; or the mane of a horse, or the beard which corn throws up while it is in the ear; and the head which some axes and hammers have as opposed to the cutting-edge, and the head of a forked pole, and the clouds rising aloft, and which they say denote a tempest of rain. *Parts* or *sections*, a *counting particle* for towns, for *parts*, paragraphs and articles, and many different words."

Brinton (1882, p. 55) says the *tzuc* was called *lusto* by the Spaniards and was equal to 4 years, as already noted. The passage from Cogolludo (1688, p. 186), which he quotes in support of this statement, contains no mention of the word *tzuc* at all, and Brinton's translation of it as being equivalent to the *lusto*, a period of 4 years, must be rejected. Indeed, in a passage from XI, precisely this meaning of division is repeatedly indicated as applied both to people and to territories: "They went forth in four divisions (*cantzuc*), which were called the four territories (*cantzucul cab*). One division (*huntzuci*) came forth from the east of Kin Colah Peten; one division (*huntzucchi*) came forth from the north of Nacocob; one division (*huntzucchi*) came forth from the gate of Zuyuaa to the west; one division (*huntzucchie*) came forth from the mountains of Canhek, the Nine Mountains as the land is called. Katun 4 Ahau; then took place the calling together of the four divisions (*can tzucuilob*) the four territories (*cantzucul cab*) as they are called." (Brinton, *op. cit.*, pp. 180, 181.)

Gates, in a recent communication to the writer, reaches a similar conclusion: "*tzuc* is one of the numerous Maya numeral counters, and is used where a given number of the parts or sections into which something is divided is referred to, as chapters or paragraphs. *Ho* (5) *tzuc* here thus refers to the completion of five of the (20) sections (*tuns*) into which a katun is divided, that is, to the hotun period."

As used in the opening passage of I, the word *tzuc* should be translated "division" or "part," and is used as a synonym for *tun*, or the twentieth part of a katun.

The writer has felt it necessary to go into this matter at some length in order to vindicate the accuracy of this chronicle, which Brinton's translation here jeopardizes. For if *tzuc* did mean 4 years instead of simply one of the 20 divisions of the katun, it forces Nakuk Pech into one of two equally unfavorable positions: either he contradicts himself flatly in saying that one katun ended in 1517 and another in 1541, or he makes the katun 24 years instead of 20 years in length, an obvious error. As translated above, however, he is in perfect agreement with himself when he states that one katun ended in 1517, and the fifth division of the next but one ended before January 6, 1542.

²Throughout this Appendix all dates in Christian chronology are expressed decimally as the above. Thus, for example, January 6 is $\frac{6}{365.24}$ or 0.016 year, the year chosen here being the tropical year of 365 days 5 hours 48 minutes and 46.04 seconds, that is, from one tropic or equinox around to the same. This gives a fraction of $\frac{6}{365.242199+}$, but as used here this is carried no farther than the second place, the year being regarded as 365.24 days in length. On this basis the following equivalents have been used: 1 day = 0.00274 year; 1 tun = 0.986 year; 1 hotun = 4.928 years; 1 katun = 19.713 years.

EVENT C.

This event, the death of Napot Xiu in 1536, is perhaps the most important of all those here under investigation, and as will appear in the following quotations, special effort seems to have been made in most of the native sources to fix it with greater precision than any of the others. For this reason it has been made the basis of several correlations (Bowditch and Goodman), that unfortunately differ widely in their results, and the writer believes the safest course to follow here is to utilize only the more general statements, concerning which there is almost complete unanimity of record.

All of our twelve sources describe this event except I, VIII, and XI; although it is difficult to explain why there should be no reference to it in the first, which was written by a native, who must have been a friend, and was a contemporary of the murdered Napot Xiu, although he relates a subsequent event, possibly of about the year 1542, or possibly as late as 1545, that seems to refer to another incident with which Cogolludo may have confused Event C.¹

The earliest account of this event is given in II, which was written between 25 and 30 years after it happened:

"The Spaniards having gone forth from Yucatan [1535], there was a scarcity of water in the land, and as they had used their maize recklessly in the wars with the Spaniards, there came upon them a great hunger, so great that they were even brought to eat the bark of trees, especially one which they called *cumche*, which is soft and tender inside. On account of this famine the Xiu who are the Lords of Mani resolved to make a solemn sacrifice to the idols, bearing certain slaves, both men and maidens, to be thrown into the well of Chichenitza, and to reach which they have to pass by the town of the Lords Cocomes, their principal enemies, and so thinking that in such a time ancient passions would not be renewed in this land, they [the Xiu] sent to them [the Cocom] asking them to let them [the Xiu] pass through their land. And the Cocomes deceived them with a fair reply, and giving them shelter all together in one great house they set fire to it and slew those who escaped, and for this reason there were great wars."²

The next account in III is not so circumstantial as the preceding, but it gives more chronological data, and, moreover, is the earliest source to associate the date 1536 with this event:

"In [Katun] 13 Ahau the water-bringer³ died; for six years the count of [Katun] 13 Ahau will not be ended; the count of the year was toward the East, the month Pop began with [the day] 4 Kan; 18⁴ Zip, 9 Imix was the day on which the water-bringer died, and that the count may be known in numbers and years, it was the year 1536, sixty years after the fortress was destroyed."⁵

¹This was the blinding of three envoys, Ikeb, Caixicum, and Chuc, who were sent by Tutul Xiu at Francisco Montejo's request to Nachi Cocom to urge upon the latter his submission to the Spanish authority. A minor Cocom chieftain, Ah Cuat Cocom, seems to have put out the eyes of these envoys and sent them back to Mani without the knowledge of Nachi Cocom (Brinton, 1882, pp. 237, 238). See page 481.

²Landa, 1881, p. 77.

³The word *ahpula*, *ahpulha*, plural *ahpulhaob*, is not translated by Brinton, who treats it as a proper noun. It means, however, a bringer of water, *ah* being the masculine prefix, *pul* to bring, and *ha* water. The title doubtless refers to the object of the pilgrimage upon which the western Maya chieftains under Ah Napot Xiu were engaged, namely, to sacrifice at the Sacred Cenote at Chichen Itza in order to bring water, *i.e.*, rain. (See note to Gates translation on p. 509.)

⁴For some unknown reason, possibly connected with the year-bearers, the positions of the days in the months underwent a shift of one position forward, probably after 1201 A. D. Thus, for example, during the Old Empire the month coefficients always accompanying any day Ahau are either 3, 8, 13, or 18, but at the close of the New Empire they are always 2, 7, 12, or 17. Again, in the Old Empire Imix is always accompanied by a month-coefficient of 4, 9, 14, or 19, but at the close of the New Empire by either 3, 8, 13, or 18, as here. This shift in all probability was accompanied by no actual gain or loss of time, because the Maya chronological system was such that the loss or gain of but a single day would have thrown their whole calendar into confusion. In the writer's correlation, as well as in that proposed by Bowditch, and in fact in all of the attempts to correlate Christian chronology with the Maya Long Count, it is necessary to postulate that this change had no corresponding effect upon the continuity of the day series, or, indeed, upon the sequence of any of the time periods, which the exigencies of the system demanded should follow each other without lacunæ.

⁵Brinton, 1882, pp. 103, 104.

The version of this event in IV is so similar to the preceding that one can not escape the conclusion that both were copied from the same original:

"[Katun] 13 Ahau; the death of the water-bringer took place; it was the sixth year when ended the count of Katun 13 Ahau; the count of the year was from the east, (the month) Pop passed on 4 Kan, 18 Zip, 9 Imix was the day the water-bringer died; it was the year 1536."¹ (IV.)

The next version of this event, that in V, should be the most credible of all our sources, since it emanates from the family of the murdered man himself, being copied by one of his great-great-great-great grandsons from an ancient and presumably a Xiu book. It therefore should give an authentic account of the tragedy:

"1537. 8 Cauac on the first of Pop when there died the water-bringers at Oztamal, namely Ahtz'un Tutul Xiu, and Ah Ziyah Napuc Chi,² and Namay Che and Namay Tun and the priest (ahmen) Evan * * * * men at Mani they were, water-bringers at Chichen Ytza, then; and there escaped Nahau Veeh, Napot Covoh; on 10 Zip it took place, in 12 Ahau it was, the tun on 2 Yaxkin it was, that it may be remembered."³ (V.)

This passage requires some elucidation. In the first place, the year intended to be understood here is not 1537 as actually recorded, but 1536. This is true, because the Christian years given on this page of the Chronicle of Oxtutzcab (see figure 72) are those in which fell *the ends of the Maya years* indicated. Thus, for example, in the above quotation, although the year 8 Cauac began in July 1536 and ended in July 1537, only the year 1537 is actually recorded. This is proved by a lower entry (see page 507) where the foundation of Merida is given as having occurred in a year 13 Kan, in the year 1542; that is, this year 13 Kan began in July 1541 and ended in July 1542, and thus included within its span January 6, 1542. According to this version of the story, five men, Ahtz'un Tutul Xiu, Ah Ziyah Napuc Chi, Namay Che, Namay Tun, and the priest Evan lost their lives, Nahau Veeh and Napot Covoh escaping.

One other very important point should be noted in connection with this passage. The *tun* in which this event took place is said to have ended on the day 12 Ahau 2 Yaxkin, which *tun*-ending does in fact fall in the year 8 Cauac, that is, 12 Ahau 2 Yaxkin is exactly 121 days later than 8 Cauac 1 Pop.

Here, indeed, is a significant point, and one which may eventually explain the greater part of the existing confusion in the Books of Chilan Balam as to the proper alinement of the *u kahlay katunob* and Old Empire chronology. We see here the confusion which inevitably arises when a chronological system expressed in units of *current* time like the Aztec years is grafted upon a system expressed in units of *elapsed* time like the Maya tuns and katuns. For example, the above entry states that the death of Ahtz'un Tutul Xiu occurred *in a year which began on the day 8 Cauac, on a day 10 Zip, 49 days after the beginning of that year, and in a tun 12 Ahau 2 Yaxkin, 72 days before the end of that tun (i. e., 49 + 72 = 121 days).*⁴ In other words, although the year-bearers governed or ushered in *current* time-periods of 365 days, the tuns or 360-day periods, as well as the katuns or 7,200-day periods, down to the very end of the New Empire were named after *their ending-days*. Thus, the

¹Brinton, 1882, pp. 148, 149.

²The names Ahtz'un and Ahziyah both appear as first or given names on the Xiu genealogical tree, although both are capable of being translated. Gates reads the former as "the leader," and Cogolludo (1688, p. 130) the latter as "the governor-priest." The evidence afforded by this tree tends to indicate that they are both used as given names here. These same two individuals probably appear as father and son under the names of Nappol Chuvat Xiu and Ahziyah Xiu respectively on this tree.

³The writer's attention was first called to this passage in 1918 by Don Juan Martínez y Hernández, and subsequently by Mr. William Gates, the translation above having been very kindly made for use here by the latter.

⁴These figures are based on the assumption that the year began on 1 Pop, and not on 2 Pop as it is necessary to assume in order to have the Kan, Muluc, Ix, and Cauac group retain their Old Empire month coefficients, i. e., 2, 7, 12, and 17, and to use Goodman's tables.

day 10 Zip could and did occur in a *current* year 8 Cauac, named for its beginning day, but in an elapsing tun, 12 Ahau 2 Yaxkin, named for its closing day, which was still 72 days in the future when 10 Zip was the current day. This change, the writer believes, was a very late one, certainly subsequent to the fall of Chichen Itza about 1200 A. D., and, as will appear later, was probably due to the introduction of Nahuatl customs and practices to which that event gave rise.

Our next account, that in VI, the version related by Bishop Cogolludo, is confused as to the date of this event, which he places in 1541 instead of 1536, although in order to do so he is obliged to *change the correct date* in his original source from 1536 to 1541 (VII on page 472) and to ascribe a different object for the Xiu embassy to Nachi Cocom than that given in II.

He makes this correction, he says, because he believes the death of Napot Xiu took place in 1541 as a result of an embassy sent by the Lord of Mani at Francisco Montejo's request, for the purpose of urging Nachi Cocom, the Lord of Sotuta, to submit to the Spanish rule without further struggle, although in the same passage he is forced to admit a still earlier killing of a Lord of Mani by the Cocom as the cause of the long-standing hatred between these two great families:

"In some ancient papers it is said that Tutul Xiu went personally to see the Cocomes, and [was] one of the beheaded men. These writings, which as I say are in extraordinary confusion and do not appear to merit credit, I mention in case somebody has credit for them, because there seems to have been a Tutul Xiu, whom the Cocomes killed in former times (from which circumstance arose the enmities between these families), and those of Mani did not conceal the death of their Principal Lord. They have the event painted as printed here [see figure 73], although the Indian who painted it erred in the Castilian numbers, putting down the year as [15] 36, which it could not be, as may be seen from what has been said, but that of [15] 41 which is now being related."¹ (VI.)

In a previous account, however, he gives the correct version with greater detail than any other source, although he makes the same fundamental mistake as above, in believing that this event took place in March or April, 1541, after the Lord of Mani visited Francisco Montejo at Merida on January 23, 1541,² to offer his submission, instead of in 1536, and further, that it was a Xiu embassy to Nachi Cocom for the purpose of urging the latter to submit to the Spaniards that met this tragic ending, and not that it was the Xiu embassy which had been on its way to Chichen Itza, 5 years earlier, to offer sacrifices at the Sacred Cenote:

"The ambassadors [of the Xiu] left for the Signiory of Zotuta, and arriving at the capital, thus named, where resided the Cocomes, they [came] in to the presence of Nachi Cocom, Principal Lord of that territory; and they made known to him their embassy. Nachi Cocom replied that they should await his reply which he would give within four or five days. Meanwhile he commanded to assemble all the Lords (*caciques*) subject to him and consulted with them as to their views on what Tutul Xiu had sent the envoy to say; they determined upon an unworthy solution of the matter against all reason and justice, and an act of hatred (which has become) notoriously infamous.

"They agreed to have a great hunt as if for a festival for the ambassadors, and their entertainment, and having withdrawn them upon this pretext from the populated district to the thick bush, they brought them to a place called Otzmal and there they feasted them for three days. For the end of the feast on the fourth day they gathered to eat under a great and beautiful tree, which in their language is called Yaa, and in Castilian sapote. Having continued there the dances and pleasures of the preceding days, the last act of the meal was to behead the ambassadors, violating the sacred security which was due to them as such. One of them, Ah Kin Chi, as a personage of superior intelligence, they saved that he might take the news to Tutul Xiu of what they had done to the others, and that this had been the reception of his embassy, abusing him as a great coward.

¹See Cogolludo, 1688, pp. 132, 133.

²Cogolludo says (1688, p. 131) that the Lord of Mani stayed with Montejo at Merida for 60 days, *i. e.*, until March 23.

"Their barbarous cruelty did not pardon even the survivor, though they spared his life, for they put out his eyes with an arrow, and then four captains of Nachi Cocom conducted him to the territory of Tutul Xiu, where they left him with all prudence, and returned to their own country. The miserable man, thus left alone, gave loud cries that perchance someone might hear him and come to his relief. It so fell out that some Indians heard him, and discovered Ah Kin Chi in the lamentable condition referred to; and being brought to the presence of Tutul Xiu he gave the news of the grievous tragedy which had befallen his ambassadors."¹ (VI.)

Mention of Otmal as the place where the massacre occurred, which is the same name as that given in the Xiu family papers to the place where the Xiu ruler was killed in 1536, serves further to establish Cogolludo's mistake, not only as to the motive of this embassy, but also as to the date upon which it took place. And finally, the identity of the persons who he states visited Montejo in 1541, with those who, he says, were slain at Otmal in 1536, as given in VII, proves his error.

Compare the following list of the alleged visitors to Montejo on January 23 1541, with the names of the slain Xiu chieftains as given in our source VII (see figure 73), and the two groups of men will be found to be identical:

"Accompanying Tutul Xiu came other chieftains (*Caziques*) his vassals, whose names I find in a relation written by an Indian [presumably the drawing he publishes, see figure 73], which are the following: Ah Nà Poot Xiu, son of Tutul Xiu, Ah Ziyah Governor Priest, Ah Kin Chi [probably the same as Ah-Ziyah Napuc Chi in V]: these they say were the lieutenants of Tutul Xiu in the capital of Mani. Yi Ban Can, Governor of the town of Tekit; Pacàb, Governor of Oxcutzcab; Kan Caba [governor] of that of Panabchen, which today is depopulated; Kupul of Zacalum; Nauat of Teab; Vluac Chan Cauich, it is not said where; Zon Ceh of Pencuyut; Ahau Tuyu of Mùna; Xul Cumche of Tipi Kal, Tucuch of Màma, Zit Couat of Chumayel."² (VI.)

There are just 13 individuals enumerated here, and a comparison of these names (without the addition of their corresponding towns) with those in figure 73, will show that the two lists are identical, and Cogolludo's naïve admission that the Indian painting actually had on it the year 1536 instead of 1541, to which date he believed it referred, establishes beyond all doubt his twofold error in this matter.

Cogolludo also appears to be responsible for introducing the anecdote of the blinded Ah Kin Chi into the story of the Otmal tragedy, probably through confusing it with the blinding of the three Xiu envoys to Nachi Cocom by Ah Cuat Cocom some time after January 1541. The latter incident is given by I as follows:

"Thus the Spaniards passed and arrived at Mani, to Tutulxiu, and then were appointed the chief Ikeb, the chief Caixicum and the chief Chuc to go to invite Ah Cuat Cocom. They were at first taken and placed in a cave by his followers: then their eyes were put out in that great cave of weasels, and there was not one who did not have his eyes put out in the cave of weasels; their eyes were put out and they were given the road to go groping to the Adelantado at Mani; and thus returned those who were cast out of the town of Cuat Cocom. Then Ah Naum Pech rose up with both of them and came to Ah Cuat Cocom; when they arrived he [probably Nachi Cocom] said to Ah Naum Pech that he had not seen nor heard of it; he said he had gone to Chichen Itza, and he came promptly to the towns with the Pechs, and they arrived at Mani to deliver up promptly (the offenders); and the Cocom said he had not witnessed what had happened in his village, and he would give permission that they should be taken who had done it."³

So far as the writer has been able to ascertain, the above incident is the only other reference to blinded envoys anywhere in the early authorities, either native or

¹Cogolludo, 1688, pp. 131, 132.

²*Ibid.*, pp. 130, 131.

³Brinton, 1882, pp. 237, 238. Brinton (*ibid.*, p. 258) was the first to point out that Cogolludo may have been confused as to the details of this incident; and subsequently he suggests that the natives, who explained source VII to the Bishop as a representation of the Otmal massacre, deceived him as to its true meaning, which is that it represents a katun-wheel. See Brinton, 1882b, p. 15 of the reprint by the Numismatic and Antiquarian Society of Philadelphia.

Spanish, and Cogolludo's error here as to the number of men slain, their names and the date, is clearly proved by V.

Moreover, this Indian painting figured by Cogolludo is capable of a very different interpretation from that given above. In the first place, it will be remembered that in V only 5 men are mentioned as having been slain at Otmal, whereas Cogolludo gives the number as 12; and again, in V, two are said to have escaped, whereas Cogolludo gives but one. Further, the only man who all agree was killed was Napot or Na Poot Xiu, V giving Ah Ziyah Napuc Chi as also being among the slain, and VI and VII giving Ah Ziyah, governor-priest Ah Kin Chi, as the one whose life was spared but whose eyes were put out. The names of the other eleven men given by VI and VII which VI says were killed at the same time, are mentioned nowhere else, neither as dead nor alive, in connection with this incident.

In a document of 1557¹ concerning a meeting of certain eastern and western Maya chieftains at Mani in that year to settle the division of the land, a Don Francisco Pacab is mentioned as governor of Oxtutzcab at that time, although he may well be a different Pacab from the one Cogolludo says was killed at Otmal. Again, in a document of 1556,² a Don Gonzalo Tuyú is given as governor of Tixcacaltuyú. Finally, the number of heads in this painting, 13, is in itself a highly suspicious circumstance, as will appear presently.

If this painting does not represent the massacre of the Xiu pilgrims at Otmal in 1536, what then does it represent? Brinton first suggested³ that it may be simply a katun-wheel like a number of others figured in the Books of Chilán Balam;⁴ and Gates has recently called the writer's attention to the fact that the 13 names given in VII are identical with those applied to a series of 13 katuns in the Books of Chilán Balam of Kaua and Mani.

The writer had already examined the Book of Chilán Balam of Kaua in Mérida in 1913 and found this to be the case, and recently, through the kindness of Doctor Gordon, of the Museum of the University of Pennsylvania, he was permitted to consult Berendt's copy of the Pío Pérez copy of the Book of Chilán Balam of Mani.

This series of 13 katuns in the Kaua manuscript begins with a Katun 3 Ahau, to which the name Ah Napot Xiu is attached, and although the corresponding series in the Mani manuscript begins with Katun 11 Ahau, the names attached to the different katuns are the same as in the Kaua series, as the following list will show:

	BOOK OF CHILAN BALAM OF KAUA.		BOOK OF CHILAN BALAM OF MANI.
Page cxix,	Katun 3 Ahau.	Ah Napot Xiu, its name.	Ah Napot Xiu.
cxix,	Katun 1 Ahau.	Zonceh, its name.	Zoon Ceeh.
cxx,	Katun 12 Ahau.	Ahau tuyu, its name.	Ahau Tuyu.
cxx,	Katun 10 Ahau.	Xul cum chem, its name.	Xul Kum Chan.
cxx,	Katun 8 Ahau.	Tu Cuch, its name.	Tucuch.
cxxi,	Katun 6 Ahau.	Cit Couat Chumayel, its name.	Cit Couat Chumayel.
cxxi,	Katun 4 Ahau.	Uluac chan, its name.	Uluuac Chan.
cxxi,	Katun 2 Ahau.	Nauat, its name.	Nauat.
cxxii,	Katun 13 Ahau.	Ah kinchy cobaa, its name.	Kinchil Cobà.
cxxii,	Katun 11 Ahau.	Yiban caan, its name.	Yiban can.
cxxii,	Katun 9 Ahau.	Pacaab, its name.	Pacab.
cxxiii,	Katun 7 Ahau.	Kan cabaa, its name.	Kan caba.
cxxiii,	Katun 5 Ahau.	Kupul, its name.	Kupul.

A comparison of these names with those in figure 73 will disclose the fact that the three lists are identical, save only for minor orthographic changes. Commencing with Ah Na Pot Xiu in figure 73 and passing in a sinistral circuit from head to

¹See Stephens, 1843, vol. II, pp. 266, 267.

²See *ibid.*, p. 268.

³See Brinton, 1882b, p. 15.

⁴See Bowditch, 1910, figures 60, 63, 64.

head, the three lists follow the same order for eight names. The ninth in figure 73 is Kupul, but the ninth in the Kaua and Mani series is Ah kinchy cobaa or Kinchil Cobà. This latter is undoubtedly the Ah Kin Chi of figure 73, just to the right of Ah Napot Xiu, and beginning here again in a dextral circuit, the names in figure 73 repeat the order in the Kaua and Mani series for the remaining five names.

And as a final proof that the Kaua and Mani series were either copied directly from VII or *vice versa*, or that all three are copies of the same original, Gates has pointed out to the writer that it is Ah Kin Chi (Ah kinchy cobaa and Kinchil Cobà in the Kaua and Mani series respectively) in all three who has an arrow piercing his head, and further, that Ah Kin Chi and Cit Couat Chumayel are the only two beardless heads of the thirteen in all three series. Indeed, whatever may be the interpretation of VII, it is obvious that all three of these series of heads are copies either of the same original or of one another.

What then is the true explanation of this picture? Is it a representation of the Otmal tragedy as claimed by Cogolludo and Stephens, or is it simply a katun-wheel from which the coefficients of the days Ahau have been omitted, the heads themselves being the day-sign? Was Cogolludo deceived by his native informants, or were they themselves in ignorance of the true nature of this picture when they told him it represented the men slain at Otmal?

The writer inclines to the belief that it was a katun-wheel, for the following reasons:

(1) There are exactly 13 heads in this picture, the same as the number of katuns in a katun-wheel.

(2) Except for the omission of the 13 coefficients of the day Ahau, it resembles other known katun-wheels.

(3) Cogolludo interprets the head with the arrow piercing it as indicating that Ah Kin Chi was spared to carry the tidings of the massacre to Mani, whereas the Xiu's own version of the story indicates that Ah Ziyah Napuc Chi, probably the same individual, was also among those slain, and that the two who escaped were Nahau Veeh and Napot Covoh.

(4) The dissimilarity in the number as well as in the names of the slain men, the Xiu record giving 5 and the picture in Cogolludo 12; and omitting Ah Napot Xiu and Ah Ziyah Napuc Chi, the remaining 3 names in the Xiu version bear no resemblance to any of the remaining 11 names in the picture.

But that the natives of Mani deliberately deceived Cogolludo, when he saw this painting about 1650, as Brinton suggests, appears more doubtful. The writer is more inclined to believe that even by the middle of the seventeenth century, so much of the ancient learning had been lost, that its real significance as representing a katun-wheel was unknown; and the omission of the day-sign coefficients and the presence of Napot Xiu's name were interpreted as indicating that it was a representation of the Otmal massacre. Finally, by the time Stephens saw it, two centuries later, its true nature had been entirely forgotten, and the symbolic tree in the center had become the famous sapote-tree at Otmal, under which the massacre is said to have taken place.

Weighing all the evidence, it appears probable that this picture (VII) was possibly intended for a katun-wheel, but in some unaccountable way the coefficients of the day-signs Ahau were omitted, and instead, a number of names were attached to them, among others those of two of the men slain at Otmal.

If the sequence started with the katun to which Napot Xiu's name is attached and the direction of reading is sinistral, then the last katun will be that to which Ah Kin Chi's name is attached, and whose head is pierced by an arrow. On the assumption that this represents a katun-wheel, this arrow might be interpreted as indicating that the circuit of the katun-wheel had completed itself with this katun, and was about to start anew, *i. e.*, the uuc katun.

It is difficult to understand how the names of actual historical characters, such as Ah Napot Xiu and Ah Ziyah Napuc Chi are known to have been, should ever have become associated with specific katuns at all; and even granting the propriety of such an association, why Ah Napot Xiu's name should have been selected for association with a katun (3 Ahau) which ended a century after his death is even more inexplicable, and yet such is the case in both the Kaua and Mani series.

There are repeated instances both in the *u kahlay katunob* and in these 13 katun-series in the Books of Chilan Balam of Mani, Tizimin, Chumayel, and Kaua, where the names of towns are associated with the different katuns, but never those of individuals. However, although it is impossible to give a satisfactory explanation of this unique phenomenon at this time, it really matters little in the present connection whether this picture represents a katun-wheel or the Xiu leaders slain at Otmal in 1536, since this source unmistakably associates the year 1536 with Ah Napot Xiu's name, thanks to Cogolludo's naïve attempt in his accompanying description to correct that year to 1541, and in Event C this association is the all-important point. Therefore VII will be used here only as indicating that Ah Napot Xiu died in 1536.

Returning to the consideration of this event, the next version of it, that in IX, is the first of the *u kahlay katunob* accounts which gives the name of the water-bringer as Napot Xiu.

"[Katun] 13 Ahau; the water-bringer died the sixth year; the count of the years was toward the east. Pop began on 4 Kan to the east, 18 Zip, 9 Imix was the day on which the water-bringer Napot Xiu died, in the year of our Lord 158."¹ (IX.)

This account is very like II and III, except that it gives the year 158. In view of the fact that all the other sources agree so unanimously that this event happened in 1536, we are doubtless justified in regarding 158 as incorrect, and indeed, as it stands, it is incomplete.

Our next version, that in X, is the only one of all the sources that is in disagreement as to the katun in which this event took place, III, IV, and IX actually stating and I, II, and V implying that the year 1536 fell in a Katun 13 Ahau:

"[Katun] 11 Ahau. In the time of its beginning the stone of Coloxpeten was taken; in this katun died the water-bringer Napot Xiu, in the first tun of [Katun] 11 Ahau."² (X.)

The writer believes this discrepancy may be satisfactorily explained without violence either to the original or to the credulity of the reader. It will be noted in the foregoing passage that this event is said to have taken place in the *first tun* of Katun 11 Ahau.

It will be remembered that under Event B the *first tun* of this katun could have begun no earlier than 1536.716, and no later than 1537.089 (*i. e.*, the days following those between which the preceding katun could have ended). Further, according to III, IV, and IX, Event C took place on the day 18 Zip, and according to V on the day 10 Zip. Now, even although Landa wrote between 1561 and 1566, we have seen he probably received his information about the calendar in 1553, as indicated by the fact that the specimen year he gives is a 12 Kan year, and if 12 Kan fell on July 16 in 1553, then 18 Zip would have fallen on September 15 in 1536 and 10 Zip on September 7,³ that is 1536.707 and 1536.685 respectively.

¹Brinton, 1882, pp. 161, 162, translation corrected by the writer.

²*Ibid.*, p. 171.

³If the Maya year began on July 16 in 1553, which seems to be the most reasonable interpretation of the fact that Landa gives 12 Kan as his specimen year, then in 1536, because of the leap years, the beginning would have fallen on July 20, and 18 Zip and 10 Zip, the 58th and 50th days of the Maya year respectively, assuming it to have begun on 1 Pop (*i. e.*, with the Kan, Muluc, Ix, and Cauac year-bearers), would have fallen on September 15 and 7 respectively.

These dates for Napot Xiu's death are so close to the *end* of Katun 13 Ahau, about a third of a year off at the most, that if the author of the original *u kahlay katunob* from which Juan Josef Hoil made his redaction in 1782 (X) had been at all confused as to the exact date of that event, except that it occurred either in the latter part of 1536 or early in 1537, he might easily have referred it to the *first tun* of Katun 11 Ahau instead of to the *last tun* of Katun 13 Ahau. The leeway here is so short, less than 5 months, that the writer believes it satisfactorily explains this *single* disagreement in *all* the native sources as to the name of the katun in which *any one* of our seven events fell.

Our last source treating of Event C is page 85¹ of the Book of Chilan Balam of Chumayel (XII). Here, under date of the year 1537, erroneously assigned to the year-bearer 9 Cauac,² we find an important entry bearing upon this event, wherein mention is twice made of the fact that it was the Xiu ruler (*halach vinic*) who had been killed, his name being given once as Ah Tutul Xiu, and the place of his death as Oztomal. Ah Tutul Xiu is nothing more than The Tutul Xiu, using the definite article as in The Campbell or The MacNaughton in speaking of the heads of those Scottish clans, a fact further indicated by reference to the dead man as the *halach vinic* or ruler.

"1537. 9 Cauac its day-name, it was that the nobles gathered at the town of Mani for full discussion about the reception of the coming strangers [*i. e.*, the Spaniards] to the country because of the fact that their ruler (*halach vinic*) had been killed. These were their names: Ah-moo Chan Xiu,³ Nahaues, Ahtz'un Chinab, Napoot Cupul, Napot Che, Nabatun Ytza, the priest Evan from Cocel; Nachan Uc, who came from Tz'ibilkal, the priest Ucan, who came from Ekob, Nachi Uc, the herald Koh, Nachan Motul, Nahau Coyi; these the grandees talked of receiving the strangers to the town because the ruler (*halach vinic*) of the city, Ah Tutul Xiu, had been killed at Oztomal."

The strangers here referred to are the Spaniards who, under Francisco Montejo the younger, had landed at Champoton in 1537 in their second attempt to conquer the country, the first, which lasted from 1527 to 1535, having failed.⁴

Summarizing the foregoing data as to Event C, the following conclusions appear to be reasonably certain:

(1) That it was a pilgrimage to Chichen Itza for the purpose of offering human sacrifices, slaves of both sexes, to the rain deities at the Sacred Cenote, in order that the drought from which the whole country was suffering at the time might cease. Actually stated in II, and implied in the word *ahpula*, *ahpulha*, or *ahpulhaob* (plural), water-bringer, in III, IV, V, IX, and X.

(2) That it took place in 1536. Actually stated in III, IV, V, and VII, and stated in II to have taken place between the end of the first Spanish entry in 1535 and the beginning of the second in 1537; and stated in XII to have taken place prior to 1537.

(3) That it took place at Oztomal. Actually stated in V, VI, and XII, and stated by II to have taken place in the territory of the Cocom.

(4) That the leader of the pilgrimage was Napot Xiu. Actually stated in VII, IX, and X, and stated in V and XII that it was the leader or ruler of the Tutul Xiu, doubtless the same individual.

(5) That the year 1536 fell in a Katun 13 Ahau. Actually stated in III and IV, implied in I, II, and V, and stated in X that Event C took place in the first tun of a Katun 11 Ahau.

The foregoing points appear to be reasonably clear, although the existence of certain contradictory data as to the Christian year, katun, tun, and year-bearer, must be admitted.

¹See Gordon, 1913, plate 85. The writer is indebted to Mr. Gates for the above translation of this passage.

²As will be seen later (pages 495-497), this is probably an error either for 8 Cauac or 9 Kan.

³This individual appears on the genealogical tree in the Chronicle of Oxkutzcab as a great-great grandson of the first Lord of Mani.

⁴Cogolludo, 1688, pp. 74, 94, and 114.

As regards the Christian year, however, there can be little doubt. Cogolludo's statement that Event C took place in 1541, in spite of the fact that he tells us his original source (VII) had 1536, has been shown to be an error; and the incomplete date 158 in IX, which may mean anything, can hardly be permitted to weigh against the explicit statements of III, IV, V, and VII, especially when the latter are all in agreement, and the indirect statements of II and XII.

As regards the katun in which Event C took place, there is only one dissenting source, namely X, which states that it occurred in the *first tun* of Katun 11 Ahau instead of in Katun 13 Ahau. It has been explained already that according to Event B, the end of Katun 13 Ahau came so near the time when Napot Xiu died that confusion as to which katun, whether 13 Ahau or 11 Ahau, he really had died in, may very well have existed, which would explain the difference noted above in X. A few days only at the right point would make the difference between the *last tun* of Katun 13 Ahau and the *first tun* of Katun 11 Ahau.

When we come down to such small divisions as the tun, and the year-bearer, however, we encounter contradictions even within the same chronicle which are irreconcilable. Fortunately, the contradictory evidence as to the tun is confined to three sources, III, IV, and IX, of which the first two are probably copies of the same original. It must be admitted, however, that these three statements, which agree with each other in regard to Event C, are in flat contradiction to the evidence supplied by Event B and by X as regards Event C, and that they are the most serious obstacles in the way of making all the sources harmonize.

All three state that when Napot Xiu died, 6 tuns were still lacking before the end of Katun 13 Ahau, which would place the end of Katun 13 Ahau in 1541 or 1542. Bishop Landa also gives some other slight evidence in support of such a correlation. As will be seen under Event D, he states that Merida was founded at the very beginning of Katun 11 Ahau, the Christian year being 1542.

The year-bearer 4 Kan mentioned in III, IV, and IX as that of the Maya year in which 1536 fell disagrees with the series of year-bearers to which practically *all* the other sources conform, and thus brings further discredit upon these more detailed statements in these three entries. This evidence as to the year-bearers will be presented later, but it may be noted here that *all* the early sources except III, IV, IX, and XII agree in assigning the year-bearer 8 Cauac to the Maya year which ran from July 20, 1536, to July 19, 1537.¹ III, IV, and IX, on the other hand, assign the year-bearer 4 Kan to this same 365-day period, and XII, the year-bearer 9 Cauac.

The nearest occurrence of a year 4 Kan in the usual system to the year 1536 was 9 years later, from July 18, 1545, to July 17, 1546, a decade after the death of Napot Xiu; and of a year 9 Cauac, 12 years earlier, from July 23, 1524, to July 22, 1525.

The evidence as to the year-bearers in all the early sources save these four is unanimous, as will appear later. This fact, coupled with the contradictions involved in accepting the statement that the end of Katun 13 Ahau was still 6 tuns off in 1536, justifies us fully in rejecting these minor details in regard to Event C in III, IV, and IX, which are contradicted so flatly by other sources equally if not more reputable, and in accepting only the following more general points upon which the greater number agree outright, and the single disagreement therewith in X being capable of reduction, perhaps to a matter of a few days. These general points are:

- (1) That Event C took place in the year 1536.
- (2) That Event C took place in a Katun 13 Ahau.

¹Owing to the fact that every fourth year in the Christian calendar was a bissextile year, the beginning of the Maya year shifted one day forward in the Christian year for each leap-year. The several correlations of specific days of the Christian year with specific days of the Maya haab given here, are based upon Landa's statement that 1 Pop fell on July 16, which the other sources indicate occurred in 1553. The writer has little confidence in this correlation as being exact to the day, however. See page 533, note 1.

Both of these agree with Events A and B already described.

A brief résumé of what appears to have happened, based upon the foregoing evidence, follows. Bishop Landa tells us that in the fourteenth century and the early part of the fifteenth century the rulers of Mayapan, the Cocom family, became increasingly oppressive and tyrannical, to the point that had it not been for the fear of their Mexican mercenaries, whom they appear to have maintained ever since the fall of Chichen Itza about the beginning of the thirteenth century, the other Maya chieftains would have risen against them.

About the beginning or middle of the fourth decade of the fifteenth century, some time during Katun 8 Ahau (1438-1458, according to the correlation suggested here), their rule became so burdensome that the Maya finally banded themselves together under the leadership of the Tutul Xiu, then reigning at Uxmal,¹ and attacking Mayapan, sacked the city and slew all the members of the ruling family save only one son, who was absent from the capital at the time. This son was later permitted to move the remnant of his people to Tibulón and there to found a new capital, which became the province of Sotuta.² This event profoundly affected the whole peninsula and brought about the abandonment of all the larger cities. The Xiu withdrew from Uxmal and founded a new capital at Mani. The Chel removed to Tikoch, while the Itza actually left the country, migrating southward to Peten, and establishing themselves around Lake Peten Itza, probably a former home of the tribe eight centuries earlier under the Old Empire.³

Landa says the hatred engendered by this war lasted for many years and gave rise to constant conflicts, and it supplies for us the direct historical cause of the tragedy of 1536.

The Cocom had never forgiven the Xiu for the leading part they had played in their downfall, and, Indian-like, had bided their time to execute a commensurate revenge. In 1535, after the failure of the first attempt to conquer Yucatan and the Spaniards had withdrawn, Landa tells us there was a great drought followed by a greater famine, until the Maya were driven to eating even the bark of trees.

In this national extremity Napot Xiu, then Lord of Mani, thinking the ancient enmities between his people and the Cocom might be suspended, asked of Nachi Cocom, then ruling at Sotuta, permission to pass through the Cocom territories on a pilgrimage to Chichen Itza for the purpose of offering sacrifices at the Sacred Cenote to appease the offended rain deities.⁴ This provided the opportunity the Cocom had long awaited. Permission was given, but only to further their long-deferred and sinister designs. The embassy was received with feasts, and after three days of entertainment, when any suspicions the Xiu pilgrims might have entertained had been entirely dissipated, and they were correspondingly off their guard, the Cocom fell upon them and murdered all save one or two who either escaped or were spared to carry tidings of the massacre to Mani. This event, we have seen, took place at Otzmal in the Cocom seigniory in 1536.

There has been some doubt as to whether Napot Xiu was the ruler of Mani, or only one of the higher Xiu officials, but the Xiu family papers (V) clearly state he was the leader, *ahtz'un*, and page 85 from the Book of Chilan Balam of Chumayel (XII) twice refers to him as the ruler, *halach vinic*.

These, then, seem to be the principal facts regarding this important event, which was recorded by so many of the early authorities, and which has such an important bearing on the correlation problem.

¹See note 2, page 470.

²Landa, 1881, p. 75.

³The writer found two stelæ at Flores in 1915 recording the dates 10.1.0.0.0 and 10.2.0.0.0, which must have come from nearby. See Morley, 1915a, pp. 345-346.

⁴Guthe has suggested that choice of the year 1536 for this pilgrimage may have arisen from the desire to have the sacrifices contemplated coincide with the ending of the current katun (13 Ahau), always an unusually auspicious time from the Maya point of view.

EVENT D.

The date of this event, the foundation of the city of Merida, the Spanish capital of Yucatan, is happily exactly fixed in our own chronology by VI as having taken place on January 6, 1542. But even here we must allow ourselves some leeway, since the Spaniards had arrived at Ichcansihoo, or Tihoo or T'ho, the site of the new capital, about a year earlier, Francisco Montejo having received the Lord of Mani there on the day of San Ildefonso, January 23, 1541, but not having perfected his hold on the region until he had defeated a coalition of eastern Maya chieftains near there on June 11, 1541. The formal act of incorporation of the municipality, however, was not drawn up until January 6 of the following year:

"After this event [the battle of June 11] for all that year they [the Spaniards] occupied themselves in conciliating all the neighboring chieftains (*caziques*), and when it seemed that the latter were subjected and tractable, and the year [15]42 having begun, they resolved to initiate the foundation of the City, by finding the site with the qualifications which the instructions had demanded. A conference was held and all agreed upon this day of the Feast of the Holy Kings, the 6th of January of the said year of 1542."¹ (VI.)

This event is also given by Source I as follows:

"In the year 1542 the Spaniards settled the territory of Merida, . . . the third time they arrived they settled permanently, in the year 1542 they settled permanently in the territory of Merida, 13 Kan being the year-bearer according to the Maya reckoning."² (I.)

In II the notice of this event seems to refer to the preliminary occupation of the site of Merida about a month after the battle of June 11, 1541, rather than to the formal act of foundation on January 6, 1542:

"The Indians say, for example, that the Spaniards had just arrived at Merida in the year of the Nativity of our Lord, 1541, which was precisely the first year of the age of 11 Ahau, which is that where the cross is [reference to a drawing of a katun-wheel in the text] and they arrived the same month of Pop which is the first month of their year."³ (II.)

The four native chronicles already quoted, although they do not give the date in Christian chronology, are all in satisfactory agreement as to the katun. Says III in this connection:

"The count of [Katun] 11 Ahau was not ended when the Spaniards, mighty men, arrived from the east, they came, they arrived here in this land."⁴ (III.)

The wording of IV is almost identical:

"[Katun] 11 Ahau; foreigners arrived—mighty men from the east; they came, they arrived here in this land."⁵ (IV.)

In IX the additional fact that the Spaniards brought the sickness, is recorded:

"[Katun] 11 Ahau; the mighty men came from the East; they brought the sickness."⁶ (IX.)

¹Cogolludo, 1688, p. 136. He also gives the text of the act and a list of the first officers of the municipality. The writer has followed Cogolludo for the other dates of this second entry of the Spaniards under Francisco Montejo the younger, as follows: 1537 for the arrival at Champoton (*ibid.*, p. 114), 1540 for the foundation of the Villa of Campeche (*ibid.*, p. 128), 1540 (late in the year) for the arrival at Merida (*ibid.*), January 23, 1541, for the visit of the Lord of Mani at Merida (*ibid.*, p. 130), June 11, 1541, for the victory over the coalition of eastern Maya chieftains near Merida (*ibid.*, p. 136), and January 6, 1542, for the foundation of Merida (*ibid.*). Molina Solis places the arrival at Champoton on Christmas Eve, 1540 (1896, p. 646, note 1), the visit of Tutul Xiu to Merida on January 23, 1542 (*ibid.*, p. 646), and the defeat of the Eastern Maya, on June 11, 1542 (*ibid.*, pp. 654, 655), on the authority of the *Probanza* of García de Medina, which gives a report by Hernando Muñoz Zapata, *Encomendero* of Oxkutzcab, of February 21, 1581. Muñoz Zapata states that Montejo disembarked at Champoton on December 24, 1540, and reached Campeche before the end of the year, *i. e.*, within a week, but this disagrees with Nakuk Pech, who says "they remained in Champoton 6 years, when they went forth to Campeche" (Brinton, 1882, p. 218). Nakuk Pech here agrees more nearly with Cogolludo, who places the stay at Champoton at 4 years, 1537 to 1540. The point is not of especial importance in the present connection, since Molina Solis accepts Cogolludo's date for the foundation of Merida as January 6, 1542 (Molina Solis, *op. cit.*, p. 633), that is, for Event D.

²Brinton, 1882, p. 228. ³Landa, 1881, p. 103. ⁴Brinton, 1882, p. 104. ⁵*Ibid.*, p. 149. ⁶*Ibid.*, p. 162.

In addition to the katun, the specific tun is also given in X:

"It was also in this katun [Katun 11 Ahau] that the Spaniards first arrived here in this land, in the seventh year of Katun 11 Ahau."¹ (X.)

In V there is the following entry:

"1542 year 13 Kan on the first of Pop [*i. e.*, the year July 1541 to July 1542]; the Spaniards founded and settled Merida; the tributes of the province began by the aid of those of Mani, 5 Ahau on 17 Tzec." (V.)

Finally, in XII we have both the Christian year and the katun given:

"Katun 13 Ahau first appeared the ships of the strangers at Campeche, 1541 the year was called when the priests of the faith brought Christianity to the Maya men, when the land was founded, already by Cuzamil, in mid-year were they, when they arrived at port in the west, and those of the west introduced the tribute.

In 1542 was founded the district ti-Hoo, Ichcanzihoo [Merida], in Katun 11 Ahau, and [there came] first the ruler Don Francisco Montejo, the Admiral, and the giving of estates to the strangers, the mighty men, in the year 1542, and the tribute began."² (XII.)

As regards Event D, we find unanimous agreement both as to the year and the katun in which it occurred, from which we may conclude:

- (1) That it took place on January 6, 1542, in some sources only the year being given.
- (2) That it took place in Katun 11 Ahau.

When we come to the tun, however, we again find minor discrepancies. Landa's statement that it was in the first tun, while agreeing roughly with III, IV, and IX as regards Event C already noted, disagrees with everything else. The statement in X, however, that it was in the seventh tun is very close to the point of contact established under I in Event B, since, according to this correlation, January 6, 1542, *i. e.*, 1542.016, fell in the sixth tun instead of the seventh (see page 477). This is true because under this correlation the sixth tun of Katun 11 Ahau began anywhere from 1541.641 to 1542.014 and ended anywhere from 1542.627 to 1543.000.

Although no katun-ending is given in V, the only tun-ending of the 13 there recorded (see page 507) which could have been a katun-ending as well, is Tun 13 Ahau 7 Xul, which, on the assumption that the 1st of Pop began on July 16, 1553, ended on November 3, 1539, *i. e.*, 1539.841, and according to V, therefore, the foundation of Merida took place in the *third tun* of Katun 11 Ahau, *i. e.*, between 1541.813 and 1542.799.

As in the case of Event C, we again have a satisfactory unanimity of opinion as to the katun and year of the event, but several contradictory statements as to the specific tun in which it occurred. This well illustrates the point made at the beginning of this Appendix, namely, that our sources agree if not pushed too far, but that when made to serve as the basis of a correlation to the day, irreconcilable differences are encountered between sources otherwise apparently equally worthy of credence.

EVENT E.

The next event upon which this correlation is based is the arrival of Bishop Francisco Toral in Yucatan, the first bishop of the diocese to take possession of the see, although the third that had been named thereto.

This event the writer believes was taken by the natives as the official introduction of Christianity into the country, since in III, IV, and IX the Bishop's arrival, the beginning of Christianity, and the occurrence of baptisms are all three mentioned in the same sentences, and referred therein to the same katun, namely, Katun 9 Ahau.

¹Brinton, 1882, p. 171.

²Gordon, 1913, plate 85. The writer is indebted to Mr. Gates for the above translation of this passage.

This, of course, was not the first introduction of Christianity to the peninsula, the expeditions of Francisco Hernández de Cordoba in 1517, Juan de Grijalva in 1518, and Fernando Cortés in 1519 having all carried priests and having all touched at the mainland. Cogolludo states that no religious accompanied the first entry of Francisco Montejo in 1527 to 1535, although it would seem certain that at least a secular priest must have accompanied that expedition.¹

The first evangelical mission of the friars was under Father Jacobo de Testera and four companions, one of whom was Father Lorenzo de Bienvenida, in 1535.²

The next entry of the friars was some 4 or 5 years after the conquest, when a group of six headed by Father Luis de Villalpando and again including Father de Bienvenida, came in 1545 or 1546.³ And finally, Landa himself had arrived in 1549,⁴ 13 years prior to the first arrival of Bishop Toral in 1562.

The Christian years 1544 and 1546, associated with the entries relating to the arrival of Bishop Toral in III, IV, and IX, are clearly confusions with the earlier entry of Father Villalpando, and according to no correlation could they have fallen in Katun 9 Ahau as stated.

The native authorities thus appear to have regarded the beginnings of Christianity as having taken place with the arrival of the first bishop. The two entries in I concerning this event are very brief:

"It was during [Katun] 9 Ahau that Christianity was introduced."⁵

"They were baptized by the first bishop to the Maya people, Don Francisco Toral; and when he baptized us, our father, the bishop, showed the images of the saints to all the villages."⁶ (I.)

The versions from III, IV, and IX are almost identical:

"[Katun] 9 Ahau; Christianity began; baptism took place; also in this katun came the first bishop, Toroba by name; this was the year 1544."⁷ (III.)

"[Katun] 9 Ahau; Christianity began; baptism took place; also in this katun came the first bishop Toral; the year which was passing was 1544."⁸ (IV.)

"[Katun] 9 Ahau; Christianity began; baptism took place; also in this katun arrived bishop Toral here; also the hanging ceased in the year 1546."⁹ (IX.)

The version in X is somewhat more explicit, the tun being given as usual:

"[Katun] 9 Ahau; no stone was taken at this time; in this katun first came the bishop Brother Francisco Toral; he arrived in the sixth tun of Katun 9 Ahau."¹⁰ (X.)

The date in Christian chronology of Event E is fixed by VI as having occurred in the year 1562:

"The same year of [15]62 came to this province the first Bishop, who took possession of this Bishopric (although he was the third one to be presented, as has been said elsewhere). This was Don Fray Francisco Toral of the Seraphic Order of my father San Francisco."¹¹ (VI.)

This event is mentioned only briefly in II:

"In this time [not specified] there arrived at Campeche Father Francisco Toral, a Franciscan friar, native of Ubeda, who had been for 20 years in Mexico, and who came as bishop of Yucatan."¹² (II.)

¹Cogolludo, 1688, p. 102.

²Cogolludo (*ibid.*, p. 103) says that Lizana gives the year of Father de Testera's entry as 1531, but that he does not believe this is correct. Molina Solis (1896, p. 524), says that Father de Testera arrived at Champoton on March 18, 1535, probably the correct date, since the Spaniards under Gonçalo Nieto had withdrawn from Yucatan temporarily at the beginning of that year (Cogolludo, *ibid.*, p. 94).

³Cogolludo, *ibid.*, p. 242. In I the date of this event is given as 1545 (Brinton, 1882, p. 230), the list of the fathers who came being the same as in Cogolludo. ⁴Cogolludo, *ibid.*, p. 268.

⁵Brinton, 1882, p. 216. ⁶*Ibid.*, pp. 233, 234. ⁷*Ibid.*, p. 104. ⁸*Ibid.*, p. 149. ⁹*Ibid.*, p. 162. ¹⁰*Ibid.*, p. 172.

¹¹Cogolludo, 1688, p. 322.

¹²Landa, 1881, p. 79.

Finally, Molina Solis fixes the date of Toral's arrival at Campeche in the first days of August 1562, and the day of his solemn entry into Merida as August 15, 1562, although he gives no authority for either statement.¹

Eliminating the obviously incorrect years of 1544 and 1546 which accompany the passages describing this event in III, IV, and IX, it is fair to say that all of our sources are again in most satisfactory agreement, both as to the katun and the Christian year in which Event E occurred, there being perfect unanimity of record as to the following points:

- (1) That it took place in 1562.
- (2) That it took place in a Katun 9 Ahau.

In only one source (X) is the tun also given, but this time it is found to agree with the correlation established under Event B. In this correlation the sixth tun of Katun 9 Ahau began somewhere between 1561.354 and 1561.727, and ended somewhere between 1562.340 and 1562.713.

If, now, we accept Molina Solis's statement that Event E took place some time early in August 1562, say from August 1 to 15, expressed decimally from 1562.583 to 1562.622, and further, if we accept the statement in X that it took place in the sixth tun of Katun 9 Ahau, we can reduce the period where correlation is possible within the limits fixed by Events A, B, C, and D from four and a half months to one and a half months. This is true because if the sixth tun of Katun 9 Ahau starts any earlier than 1561.597, then its end will fall before 1562.583, the earliest possible date for Event E, according to Molina Solis, and Event E will not fall in the sixth tun of Katun 9 Ahau, as stated in X, but in the seventh tun.

This reduction of the possible margin of correlation under Event B fits Events A, C, and D without violating any of those larger statements of fact upon which only this correlation is based, and gives for the period in which the end of Katun 13 Ahau could fall and yet agree with the details of Event E, as given by Molina Solis and X, 1536.956 to 1537.086, the final limit remaining unchanged. These dates are between December 15, 1536, and February 1, 1537 inclusive, while Goodman, through a process he does not explain, states that Katun 11 Ahau among the Itza, Cocom, and Chel began on December 25, 1536,² *i. e.*, precisely within this same brief period.

EVENT F.

This event, the death of Bishop Landa, is given with absolute agreement in terms of the *u kahlay katunob* in III, IV, IX, and X, while VI fixes it in terms of Christian chronology:

"In [Katun] 7 Ahau died the first bishop de Landa."³ (III.)

"[Katun] 7 Ahau; bishop Landa died in this katun."⁴ (IV.)

"[Katun] 7 Ahau; bishop Landa died."⁵ (IX.)

"[Katun] 7 Ahau; no stone was taken; in this katun died Bishop Landa, then also came the bishop his successor."⁶ (X.)

"He [Bishop Landa] died on the 29th of April, 1579, with 38 years in Religion, 30 as minister and Apostle of this land, and 6 not completed in the possession of its bishopric, and the whole course of his life being 54 years."⁷ (VI.)

Here again we have unanimous agreement, the four native authorities all stating that Event F took place in a Katun 7 Ahau and Cogolludo giving not only the Christian year but the day and month as well—April 29, 1579, *i. e.*, 1579.326.

¹Molina Solis, 1904, pp. 66, 68.

²Goodman, 1905, p. 645.

³Brinton, 1882, p. 104.

⁴*Ibid.*, p. 149.

⁵*Ibid.*, p. 162.

⁶*Ibid.*, p. 172, translation corrected by Gates.

⁷Cogolludo, 1688, p. 362.

EVENT G.

The last event in our list is by no means the least important, since it emanates from a branch of the Maya, the Itza, who had moved out of Yucatan nearly two centuries before it took place, but who had maintained, apparently unimpaired as we shall see, the chronological system in vogue in Yucatan at the time of their departure. The fact that the date of this closing event agrees with the dates of the other events, which had taken place from 39 to 107 years earlier in another region, is of itself excellent authentication of the uniformity and accuracy of the native chronology, even after the Spanish Conquest.

Villagutierre Sotomayor, whose *History of the Conquest of the Province of the Itza* is the leading authority for its field (the conquest of the last independent group of the Maya), in the two following passages fixes the date of Father Fuensalida's visit to Tayasal, the capital of the Itza on Lake Peten Itza, in both Christian and Maya chronology, as follows:

"Three or four years later, while the year 1618 was already running its course, on the 25th of March, while Francisco Ramirez Briceño was governing in those provinces, a Provincial Chapter of the Order of San Francisco was celebrated in the City of Merida, and in it, full of the Love of God, and of Charity in view of the Spiritual necessity of those Neighbors (although Pagans) [*i. e.*, the Itza], offer was made to go and preach the Holy Evangel to the Itzaex by the Fathers Fray Bartolomé de Fuensalida and Fray Juan de Orbita, both Men of Learning and of consummate Virtue, Priests, and very intelligent Interpreters of that Maya language, natural to the Itzaex, as to all Yucatecans, which they (the Itza) had formerly been."¹

And:

"To this Canek replied: That the Time had not arrived, which his Ancient Priests had foretold unto him in which they were to put aside the adoration of the Gods; because the Age in which they were at this time was that which they called Oxahau, which means Third Age: (These Barbarians most assuredly count their Ages backwards or towards a determined number, which having been reached, they forget and return to the beginning of the count;² because when they withdrew from Yucatan, which was now going on for three hundred years, they said that it was the Eighth Age³ and that the time foretold unto them was not due to arrive so soon; and now they said that it was the Third Age, and that the time had not arrived.) And so they [the Itza] asked them [Padres Fuensalida and Orbita] to treat no more upon that matter for the time being, and that they withdraw to the Village of Tipu, and that on some other occasion they should go to that Isle to see them [the Itza]."⁴

¹Villagutierre Sotomayor, 1701, pp. 83, 84.

²This is a clumsy reference to the *uuc katun* or doubling of the katuns, in which the 13 differently named katuns, *i. e.*, 13 Ahau, 11 Ahau, 9 Ahau, etc., having finished a complete round, began another round. The katun with which the round of the 13 katuns closed was Katun 10 Ahau, and the new round began with 8 Ahau. The only reason the writer can suggest why this latter katun should have been chosen for this purpose is because the *u kahlay katunob* in the Mani and Tizimin manuscripts, which go back farther than the three from the Chumayel manuscript, both began with a Katun 8 Ahau, and further, as will appear later, in the correlation of the two chronologies suggested here, this katun is probably none other than 9.0.0.0.0 8 Ahau 13 Ceh, or the beginning of the cycle during which the Maya attained their first great cultural florescence.

Brinton (1882, p. 85) gives two passages from the Codice Pérez which bear upon this matter, as follows: "At the last of Katun 10 Ahau is ended one doubling of the katun, and the return a second time of thirteen katuns is written on the face of the katun circle; one doubling of the katuns as it is called will then finish its course to begin again; and when it begins, it is written that another katun commences: when Katun 8 Ahau ends it has begun again [*i. e.*, the doubling begins with Katun 8 Ahau]" (Codice Pérez, p. 90). And again: "At the last of Katun 10 Ahau is ended the joining together of the 13 katuns, written on the face of the katun circle; one doubling of the katuns, as it is called, will then finish its course, and another katun will begin and will end as Katun 8 Ahau; this begins a second time as it began and was then written" (Codice Pérez, p. 168).

Curiously enough, after having made these clear translations, Brinton failed to apply them in his translations of the chronicles themselves, for wherever the expression *oxlahun uuc u katunil* (*i. e.*, thirteen doubling back, the katun) occurs in the chronicles he invariably renders it as "the thirteen divisions of warriors," thereby entirely changing the meaning of the original.

³This is in most satisfactory agreement with the chronicles from the Books of Chilán Balam, four out of the five of which also state that the fall of Mayapan took place in a Katun 8 Ahau, *i. e.*, Villagutierre Sotomayor's "Eighth Age."

⁴Villagutierre Sotomayor, *op. cit.*, pp. 105, 106.

These last two passages give us a seventh date fixed in the two chronologies, namely, that the year 1618 fell in a Katun 3 Ahau, which we shall presently see agrees with the best interpretation of the other six events.

THE CORRELATION OF THE U KAHLAY KATUNOB AND CHRISTIAN CHRONOLOGY.

Let us next examine the foregoing data and ascertain if it is possible to derive therefrom any correlation of the two chronologies which will not violate statements in one or other of our sources. These data indicate that:

Event A, 1511 fell in a Katun 2 Ahau.

Event B, the end of a Katun 2 Ahau fell in 1517.

Event C, 1536 fell in a Katun 13 Ahau.

Event D, January 6, 1542, fell in a Katun 11 Ahau.

Event E, August 1 to 15, 1562, fell in a Katun 9 Ahau.

Event F, April 29, 1579, fell in a Katun 7 Ahau.

Event G, 1618 fell in a Katun 3 Ahau.

The dates of these seven events cover a period of 107 years, being sufficiently scattered, 1511, 1517, 1536, 1542, 1562, 1579, and 1618—6, 19, 6, 20, 17, and 39 years apart respectively—to furnish an exacting test of the accuracy of the corresponding correlation of Christian years and Maya katuns, and to establish a correlation of the two chronologies to at least within a year. Indeed, as regards the specific katuns in which these several Christian years fell there is all but unanimous agreement, as the following table will show:¹

Source.	Event A.	Event C.	Event D.	Event E.	Event F.	Event G.
I. . .	Katun 2 Ahau.	.....	Katun 11 Ahau.	Katun 9 Ahau.		
II. . .	.....	.....	Katun 11 Ahau.			
III. . .	Katun 2 Ahau.	Katun 13 Ahau.	Katun 11 Ahau.	Katun 9 Ahau.	Katun 7 Ahau.	
IV. . .	Katun 2 Ahau.	Katun 13 Ahau.	Katun 11 Ahau.	Katun 9 Ahau.	Katun 7 Ahau.	
V. . .	.....	Katun 13 Ahau.	Katun 11 Ahau.			
VIII. . .	.....	.....	.....	.....	.....	Katun 3 Ahau.
IX. . .	Katun 2 Ahau.	Katun 13 Ahau.	Katun 11 Ahau.	Katun 9 Ahau.	Katun 7 Ahau.	
X. . .	.....	Katun 11 Ahau.	Katun 11 Ahau.	Katun 9 Ahau.	Katun 7 Ahau.	
		(first tun).				
XI. . .		.....	Katun 11 Ahau.			
XII. . .		.....	Katun 11 Ahau.			

The single entry which does not conform with the above correlation is the passage in X which assigns Event C to the first tun of Katun 11 Ahau instead of to Katun 13 Ahau as do the others. But even here it is the *first tun* of Katun 11 Ahau, and, as already pointed out, a difference of a few days at the close of 1536 or early in 1537 would have thrown Event C from the *last* tun of Katun 13 Ahau into the *first* tun of Katun 11 Ahau. In view of all the other evidence as to this event, as well as to all the other events in all the other sources, the writer feels it is perfectly safe to accept the foregoing points of contact between the *u kahlay katunob* and Christian chronology as correct.

Of course, on the basis of Event B alone, it is possible to reach a correlation correct to within a year, since it states that a katun, which we have seen could only have been Katun 2 Ahau, came to an end some time during 1517; but even omitting this for the moment, the other six events give a correlation correct to within less

¹Event B is omitted only because on its face it fixes the correlation of the *u kahlay katunob* and Christian chronology to a year. It also agrees with the other six events.

than 4 years. For if Katun 2 Ahau is made to end any *later* than 1520.186, Event F (1579.326) can not fall in Katun 7 Ahau; and if Katun 2 Ahau is made to end any *earlier* than 1516.287, Event C (1536) can not fall in Katun 13 Ahau. Thus, without the aid of Nakuk Pech's important statement, the other sources give a correlation correct to within 4 years.

Coming down to the tuns, we reach our first discrepancies. These divide themselves into three groups, as follows:

GROUP 1.

- 1517 fell in the last tun of Katun 2 Ahau (I).
- 1536 fell in the last tun of Katun 13 Ahau (I).
- 1536 fell in the first tun of Katun 11 Ahau (X), possibly only a few days later than I.
- 1542 fell in the sixth tun of Katun 11 Ahau (I).
- 1542 fell in the seventh tun of Katun 11 Ahau (X), one tun later than I.
- 1562 fell in the sixth tun of Katun 9 Ahau (X), agrees with I.

GROUP 2.

- 1536 fell in the fourteenth tun of Katun 13 Ahau (III).
- 1536 fell in the fourteenth tun of Katun 13 Ahau (IV).
- 1536 fell in the fourteenth tun of Katun 13 Ahau (IX).
- 1542 fell in the first tun of Katun 11 Ahau (II).
- 1542 fell in the first tun of Katun 11 Ahau (XII).

GROUP 3.

- 1539 fell in the last tun of Katun 13 Ahau (V).

But we have just seen that without the evidence of I in regard to Event B, if we make the end of Katun 2 Ahau any later than 1520.186, and consequently the end of Katun 13 Ahau any later than 1539.899, Event F can not fall in Katun 7 Ahau at all, the katun given for it in III, IV, XI, and X. Therefore, in Group 2 the entries in III, IV, and IX, giving 1536 as 6 tuns before the end of Katun 13 Ahau, flatly contradict the entries in these *same* sources which give Event F as in Katun 7 Ahau. They are mutually exclusive, and one passage or the other must be rejected.

When we come to examine the year-bearers, we will find that although III, IV, and IX agree that the year-bearer of Event C was 4 Kan, they disagree with every other correlation of year-bearers and Christian years known. The isolation of these three entries as regards these two different points, the tun in which Event C took place, as well as the corresponding year-bearer, and the fact that all three contradict other of their own statements, strongly indicates that they are incorrect, and should not be trusted for purposes of exact correlation.

The third group stands by itself; moreover, as will be shown later, it makes Katun 13 Ahau end on 1539.841 (November 3) or only 21.2 days before the last day which will permit Event F to have taken place in Katun 7 Ahau. While it is of course true that Bishop Landa may have died in the first 22 days of Katun 7 Ahau, it appears unlikely that he did so, and when all the satisfactory agreements in Group 1 are taken into consideration (with which this single unsupported statement as to the tun in Group 3 disagrees), it appears probable that the tun arrangement in Group 3 as well as that in Group 2 may be rejected.

Following the tun arrangement in Group 1, and utilizing the data given by I as to Events B and D and by X in regard to Event E, we reach a correlation wherein the margin of error is reduced to 49 days, *i. e.*, the ending of Katun 13 Ahau falling between December 15, 1536, and February 1, 1537 inclusive. To attempt a closer correlation than this appears unsafe in view of the character of the evidence with which we are dealing, but this far we may go in safety without violence to any of our sources save only those which contain contradictory statements within themselves.

If the foregoing correlation of the *u kahlay katunob* and Christian chronology is correct, we will have the following table of equivalents for the seven katuns here under examination:

End of Katun	2 Ahau	from 1517.243 to 1517.373.
End of Katun	13 Ahau	from 1536.956 to 1537.086.
End of Katun	11 Ahau	from 1556.669 to 1556.799.
End of Katun	9 Ahau	from 1576.382 to 1576.512.
End of Katun	7 Ahau	from 1596.095 to 1596.225.
End of Katun	5 Ahau	from 1615.808 to 1615.938.
End of Katun	3 Ahau	from 1635.521 to 1635.651.

Before proceeding to select a single date between these two limits upon which to base a table of equivalents for the katun-endings in Christian chronology, it is first necessary to examine the question of the year-bearers.

Distrust has already been expressed of the passages in III, IV, and IX, which give the year-bearer of the Maya year in which Event C fell as 4 Kan, and it will appear from the following presentation of the year-bearers that this can not possibly have been the case unless we again reject the preponderance of the evidence.

The writer finds the following 17 passages in the several sources, in which Maya year-bearers are associated with specific years of Christian chronology:

- (1) The statement of Pío Pérez that the Maya year 7 Cauac began in 1392, based, he says, upon "all sources of information, confirmed by the testimony of Cosme de Burgos, one of the conquerors and a writer (but whose observations have been lost)."¹
- (2) An entry quoted by Brinton² from an unnamed Maya manuscript in his possession stating that the Maya year in which the Spaniards first arrived at Chichen Itza was 11 Muluc, the Christian year being either late in 1526 or early in 1527; in either case in the Maya year 11 Muluc, which began in July 1526, and ended in July 1527.
- (3) An entry in III stating that the Maya year 4 Kan began in 1536.
- (4) An entry in IV stating that the Maya year 4 Kan began in 1536.
- (5) An entry in IX stating that the Maya year in which Napot Xiu died was 4 Kan, which event, we have seen, took place in the latter part of 1536.
- (6) A passage on page 66 of the Chronicle of Oxtutzcab (V), giving a series of 13 years, beginning with the Maya year 4 Cauac, which began in 1532, and ending with the Maya year 3 Cauac, which began in 1544.
- (7) An entry in XII stating that the Maya year 9 Cauac began in 1537.
- (8) An entry in I stating that the Maya year 13 Kan began in 1541.
- (9) An entry on page 115 of the Book of Chilán Balam of Mani, stating that 11 Chuen 18 Zac fell on February 15, 1544, making the current Maya year 2 Ix begin in 1543.
- (10) An entry on page 8 of the Book of Chilán Balam of Tizimin, stating that 11 Chuen 18 Zac fell on February 15, 1544, making the current Maya year 2 Ix begin in 1543.
- (11) An entry on page 101 of the Book of Chilán Balam of Mani, stating that the Maya year 13 Kan began in 1593.
- (12) An entry on page 1 of the Book of Chilán Balam of Tizimin, stating that the Maya year 13 Kan began in 1593.
- (13) A passage on pages 168 to 170 of the Berendt copy of the Pío Pérez copy of certain extracts from the Book of Chilán Balam of Mani, giving a series of 53 years beginning with the Maya year 13 Cauac, which began in 1736, and ending with the same Maya year, which began again in 1788.

¹Stephens, 1843, vol. 1, p. 442. Pío Pérez derived this information in part from a passage in the Book of Chilán Balam of Mani, extracts from which appear in Berendt's copy of the Pío Pérez copy of that manuscript. On page 176 of the Berendt copy, now in the library of the Museum of the University of Pennsylvania (catalogue number: Br. 498.21 MB 456.5), under entries from page 67 of the Pío Pérez copy, the year 1392 is assigned the year-bearer 7 Cauac as follows: "1392 Uaxac Ahau lae 7 Cauac," although the 8 Ahau can be neither a tun-ending nor a katun-ending in that year.

²Brinton, 1882, p. 251.

- (14) A passage on pages 23 and 24 of the Book of Chilán Balam of Tizimin, giving a series of 48 years beginning with the Maya year 3 Cauac, which began in 1752, and ending with the Maya year 11 Ix, which began in 1799.
- (15) A passage on page 179 of the Berendt copy of the Pío Pérez copy of certain extracts from the Book of Chilán Balam of Mani, giving a series of 25 years, beginning with the Maya year 3 Cauac, which began in 1752, and ending with the Maya year 1 Cauac, which began in 1776.
- (16) A passage on page 174 of the Berendt copy of the Pío Pérez copy of certain extracts from the Book of Chilán Balam of Mani, giving a series of 17 years beginning with the Maya year 9 Muluc, which began in 1758, and ending with the Maya year 12 Muluc, which began in 1774.
- (17) A passage on page 24 of the Book of Chilán Balam of Tizimin, giving a series of 52 years beginning with the Maya year 1 Kan, which began in 1758, and ending with the Maya year 13 Cauac, which began in 1809.

Before proceeding to compare these several points of contact, we may first eliminate the last. This is clearly nothing more than a series of the 52 year-bearers divided into four divisions of 13 each, the first division, beginning with 1 Kan, being referred to the east, the second, beginning with 1 Muluc, being referred to the north, the third, beginning with 1 Ix, being referred to the west, and the last, beginning with 1 Cauac, being referred to the south.

It assigns the year-bearer 1 Kan to 1758, thereby disagreeing not only with the year-bearer for that year given in No. 14 (9 Muluc), a series which just precedes it in the Tizimin manuscript, but also with *all the other sources* given above, while No. 14, on the other hand, *agrees with all the other sources* except Nos. 3, 4, 5, and 7.

No. 17 is obviously not an attempt to correlate the Maya year-bearers with the corresponding Christian years in which they fell, as is No. 14, but is only an arrangement of the 52 year-bearers beginning with 1 Kan in 1758, possibly because that may have been the year the series was written. It has, therefore, no value in the present connection, and may be eliminated from further consideration.

We have, then, 16 different passages upon which to base our correlation covering a range of more than 4 centuries, 1392 (No. 1) to 1799 (No. 14). In order to bring all the above year-bearers within the range of a single century and to expedite comparison, 1548, the *third* recurrence of 7 Cauac *after* 1392 (*i. e.*, $1392 + (3 \times 52) = 1548$) will be used in No. 1; 1528, the *fourth* recurrence of 13 Cauac *before* 1736 (*i. e.*, $1736 - (4 \times 52) = 1528$), in No. 13; 1544, the *fourth* recurrence of 3 Cauac *before* 1752 (*i. e.*, $1752 - (4 \times 52) = 1544$) in No. 14. 1544 will also be substituted for 1752 in No. 15; and 1550, the *fourth* recurrence of 9 Muluc *before* 1758 (*i. e.*, $1758 - (4 \times 52) = 1550$) will be used in No. 16.

Tabulating the Christian years from 1525 to 1593, inclusive, with their corresponding year-bearers, we will have the table of equivalents given on page 497.

It will be noted that this one system of correlation harmonizes 12 of our 16 sources, Nos. 3, 4, 5, and 7 being the only ones which do not conform to it; and even of these, No. 7 states that 1537 was in a year 9 Cauac, *i. e.*, the coefficient being correct but the day-sign being Cauac, that of the preceding year, instead of Kan.

The nearest occurrence of 9 Cauac to 9 Kan (1537) according to the above system is in 1524, but the context of this passage in No. 7 (XII) shows that it was the date of an event which took place some time after the death of Napot Xiu; indeed, that it was a conference held at Mani because of his death, and after the Spaniards had arrived at Champoton in 1537. If this conference was held before July 1537, it was in the same Maya year as Napot Xiu's death, *i. e.*, 8 Cauac, and only the coefficient is wrong, being a 9 for an 8; but if held after July 1537, the coefficient 9 is correct and the day-sign is wrong, being Cauac for Kan. In either event the correction is slight, and this probably explains the existing disagreement.

Table showing the correlation of the Maya and the Christian years.

Christian year.	Maya year.	Source.	Christian year.	Maya year.	Source.	Christian year.	Maya year.	Source.
1525.....	10 Kan...	No. 2.	1548.....	7 Cauac	No. 1.	1571.....	4 Ix....	
1526.....	11 Muluc		1549.....	8 Kan...	No. 16.	1572.....	5 Cauac.	
1527.....	12 Ix....		1550 ⁴	9 Muluc		1573.....	6 Kan...	
1528 ¹	13 Cauac	No. 13.	1551.....	10 Ix....		1574.....	7 Muluc.	
1529.....	1 Kan...	No. 6.	1552.....	11 Cauac.		1575.....	8 Ix....	
1530.....	2 Muluc.		1553 ⁵	12 Kan...		1576.....	9 Cauac.	
1531.....	3 Ix....		1554.....	13 Muluc.		1577.....	10 Kan...	
1532 ²	4 Cauac		1555.....	1 Ix....		1578.....	11 Muluc.	
1533.....	5 Kan...		1556.....	2 Cauac.		1579.....	12 Ix....	
1534.....	6 Muluc.		1557.....	3 Kan...		1580 ⁸	13 Cauac.	
1535.....	7 Ix....		1558.....	4 Muluc.		1581.....	1 Kan...	
1536.....	8 Cauac.		1559.....	5 Ix....		1582.....	2 Muluc.	
1537.....	9 Kan...		1560.....	6 Cauac.		1583.....	3 Ix....	
1538.....	10 Muluc.		1561.....	7 Kan...		1584.....	4 Cauac.	
1539.....	11 Ix....		1562.....	8 Muluc.		1585.....	5 Kan...	
1540.....	12 Cauac.	No. 8.	1563.....	9 Ix....		1586.....	6 Muluc.	
1541.....	13 Kan...		1564.....	10 Cauac.		1587.....	7 Ix....	
1542.....	1 Muluc.		1565.....	11 Kan...		1588.....	8 Cauac.	
1543.....	2 Ix....	Nos. 9, 10.	1566 ⁶	12 Muluc.		1589.....	9 Kan...	
1544 ³	3 Cauac	Nos. 14, 15.	1567.....	13 Ix....		1590.....	10 Muluc.	
1545.....	4 Kan...		1568 ⁷	1 Cauac.		1591 ⁹	11 Ix....	
1546.....	5 Muluc.		1569.....	2 Kan...		1592.....	12 Cauac.	
1547.....	6 Ix....		1570.....	3 Muluc.		1593.....	13 Kan...	Nos. 11, 12.

This leaves Nos. 3, 4, and 5 (the first two probably copies of the same original), all of which agree with each other that 4 Kan fell in 1536, but disagree with *everything else*. It will be remembered that it was these same three entries which fixed the year 1536 as occurring in the fourteenth tun of Katun 13 Ahau, thereby disagreeing with *all the other sources* and even contradicting other entries of their own by that statement.

It is obvious, therefore, that these three passages are radically wrong; not only do they give a tun correlation at variance with all the other sources and even with themselves elsewhere, but also the year-bearer they associate with 1536 disagrees with those in the other two systems for this year, and even with the one in the purely schematic 52-year series in No. 17.

Because of their isolation and consistent non-conformity with everything else, including even other passages in the chronicles where they occur, the writer believes this passage in III, IV, and IX must have the two following points stricken from it:

- (1) That 1536 fell in the fourteenth tun of Katun 13 Ahau.
- (2) That 4 Kan was the year-bearer for the year beginning in July 1536.

And be accepted only as regards the two more general points:

- (1) That Napot Xiu died in a Katun 13 Ahau.
- (2) That this event took place in 1536.

¹No. 13, as carried backward 208 years, begins a series of 53 consecutive years here: 1528-1580 inclusive.

²No. 6 begins a series of 13 consecutive years here: 1532 to 1544 inclusive.

³No. 6 ends with this year, and Nos. 14 and 15 as carried backward 208 years, begin series of 48 and 25 consecutive years respectively with this year: No. 14, 1544-1591 inclusive, and No. 15, 1544-1568 inclusive.

⁴No. 16, as carried backward 208 years, begins a series of 17 consecutive years here: 1550-1566 inclusive.

⁵This may be Landa's specimen year 12 Kan.

⁶No. 16, as carried backward 208 years, ends with this year.

⁷No. 15, as carried backward 208 years, ends with this year.

⁸No. 13, as carried backward 208 years, ends with this year.

⁹No. 14, as carried backward 208 years, ends with this year.

The foregoing analysis of the year-bearers shows a remarkable agreement, twelve different sources, written between 1562 and 1782, giving year-bearers scattered over a period of more than four centuries, all of which conform to the same system of correlation.

Most significant of all, perhaps, is the fact that Nos. 13, 14, 15, and 16, written as late as the latter half of the eighteenth century, agree with the system of year-bearers in use more than two centuries earlier, at the time of the Spanish Conquest.

All these agreements can not be the result of chance alone, and we may therefore accept Nakuk Pech's statement that Merida was founded in the Maya year 13 Kan (*i. e.*, July 1541, to July 1542) without any further reservation, and utilize this point of contact for our correlation of the Maya year-bearers with Christian chronology.

Finally, the whole question of the proper alinement of the *u kahlay katunob* with Christian chronology may be summed up as follows:

- (1) Practically all of the sources, Spanish as well as native, agree with Nakuk Pech in placing the end of Katun 2 Ahau as falling some time in 1517.
- (2) The great bulk of the evidence tends to show further that this katun ended very early in 1517, *i. e.*, between 1517.243 and 1517.373, and that the following katun, Katun 13 Ahau, ended between 1536.956 and 1537.086.

With the evidence now available it appears unwise to attempt to make a closer correlation than the foregoing, which restricts the maximum margin of error to 49 days. However, in order to have a single Christian date for each katun-ending in the accompanying table of equivalents, December 24, 1536, *i. e.*, 1536.982 has been arbitrarily selected as the day upon which Katun 13 Ahau ended for the following reason: Goodman gives this *same day* as that upon which Katun 13 Ahau ended according to the Itza, Cocom, and Chel chronicles, although he does not describe the data upon which this correlation is based.¹ This date lies between the two limits reached in the foregoing pages, for which reason it has been followed here, and in any case it can not be more than 39 days earlier or 9 days later than the true date.

On the basis of this point of contact, the corresponding equivalents in Christian chronology for the several katuns of the *u kahlay katunob* found in the Books of Chilan Balam as set forth by Brinton,² are given in the table on page 499.

Before going further with our correlation, it is necessary to point out several special features of this table. In the first place, the Christian years given correspond to the *ends* of the katuns with which they are correlated and not their beginnings. Again, Brinton's arrangement of the earlier katuns prior to Katun 6 Ahau (452.767 A. D.) has been followed exactly. In this connection it should be borne in mind that the first chronicle from the Book of Chilan Balam of Chumayel presents an unbroken succession of the katuns from Katun 3 Ahau (1635.547 A. D.) back to the discovery of Chichen Itza in Katun 6 Ahau (452.767 A. D.), a period of nearly 1,200 years, and more than 1,100 years before the Spanish Conquest.

The first Chumayel chronicle begins with the discovery of Chichen Itza, but the Mani and Tizimin chronicles go back 14 katuns earlier to a legendary departure from the probably mythological land of Tulapan and the house, Nonoual. To be sure, there are repetitions and omissions in both these records among these earliest 14 katuns, but the arrangement suggested by Brinton appears to the writer to be correct, and, as we shall presently see, its use gives rise to a remarkable condition, which in itself strongly tends to authenticate its own accuracy.

¹What Goodman really says is that "the 11 Ahau katun [*i. e.*, Katun 11 Ahau] of the Itzas, Cocoms, and Chels began December 25, 1536" (1905, p. 645), that is, the following day.

²Brinton, 1882, pp. 87, 88.

Finally, in the column of events there are certain minor differences with the record as given by Brinton. A few uncertain events of lesser importance have been omitted, a few others at the end of the sequence have been included, and the dates of a few important events, such as the foundation of Uxmal, have been corrected to conform with discoveries made subsequent to Brinton's time.

Table showing correlation of the u kahlay katunob and Christian chronology.

U kahlay katunob.	Christian chronology.	Event.	U kahlay katunob.	Christian chronology.	Event.
	A. D.			A. D.	
Katun 8 Ahau..	176.785	Leave Tulapan.	Katun 2 Ahau..	1004.731	The Xiu found Uxmal.
Katun 6 Ahau..	196.498				League of Mayapan begins.
Katun 4 Ahau..	216.211		Katun 13 Ahau..	1024.444	
Katun 2 Ahau..	235.924	Arrive Chacnouitan.	Katun 11 Ahau..	1044.157	
Katun 13 Ahau..	255.637		Katun 9 Ahau..	1063.870	
Katun 11 Ahau..	275.350		Katun 7 Ahau..	1083.583	
Katun 9 Ahau..	295.063		Katun 5 Ahau..	1103.296	
Katun 7 Ahau..	314.776		Katun 3 Ahau..	1123.009	
Katun 5 Ahau..	334.489		Katun 1 Ahau..	1142.722	
Katun 3 Ahau..	354.202		Katun 12 Ahau..	1162.435	
Katun 1 Ahau..	373.915		Katun 10 Ahau..	1182.148	
Katun 12 Ahau..	393.628		Katun 8 Ahau..	1201.861	Plot of Hunnac Ceel.
Katun 10 Ahau..	413.341				League of Mayapan ends.
Katun 8 Ahau..	433.054		Katun 6 Ahau..	1221.574	
Katun 6 Ahau..	452.767	Chichen Itza discovered.	Katun 4 Ahau..	1241.287	
Katun 4 Ahau..	472.480	Bakhalal occupied.	Katun 2 Ahau..	1261.000	
Katun 2 Ahau..	492.193		Katun 13 Ahau..	1280.713	
Katun 13 Ahau..	511.906	Pop counted in order.	Katun 11 Ahau..	1300.426	
Katun 11 Ahau..	531.619	Chichen Itza occupied.	Katun 9 Ahau..	1320.139	
Katun 9 Ahau..	551.332		Katun 7 Ahau..	1339.852	
Katun 7 Ahau..	571.045		Katun 5 Ahau..	1359.565	
Katun 5 Ahau..	590.758		Katun 3 Ahau..	1379.278	
Katun 3 Ahau..	610.471		Katun 1 Ahau..	1398.991	
Katun 1 Ahau..	630.184		Katun 12 Ahau..	1418.704	
Katun 12 Ahau..	649.897	Chichen Itza abandoned.	Katun 10 Ahau..	1438.417	
Katun 10 Ahau..	669.610		Katun 8 Ahau..	1458.130	Mayapan destroyed by the Xiu.
Katun 8 Ahau..	689.323	Chakanputun occupied.	Katun 6 Ahau..	1477.843	
Katun 6 Ahau..	709.036		Katun 4 Ahau..	1497.556	The pestilence.
Katun 4 Ahau..	728.749		Katun 2 Ahau..	1517.269	Spaniards first seen. The small-pox.
Katun 2 Ahau..	748.462		Katun 13 Ahau..	1536.982	The water-bringer Ah Napot Xiu dies.
Katun 13 Ahau..	768.175		Katun 11 Ahau..	1556.695	Spanish Conquest. Merida founded.
Katun 11 Ahau..	787.888		Katun 9 Ahau..	1576.408	Bishop Toral arrives.
Katun 9 Ahau..	807.601		Katun 7 Ahau..	1596.121	Bishop Landa dies.
Katun 7 Ahau..	827.314		Katun 5 Ahau..	1615.834	
Katun 5 Ahau..	847.027		Katun 3 Ahau..	1635.547	Father Fuensalida visits Lake Peten Itza.
Katun 3 Ahau..	866.740				
Katun 1 Ahau..	886.453				
Katun 12 Ahau..	906.166				
Katun 10 Ahau..	925.879	Chakanputun abandoned.			
Katun 8 Ahau..	945.592	The Itza return to Chichen Itza.			
Katun 6 Ahau..	965.305				
Katun 4 Ahau..	985.018				

THE CORRELATION OF THE LONG COUNT AND CHRISTIAN CHRONOLOGY.

Having now effected the correlation of the *u kahlay katunob* and Christian chronology as far as possible, we have performed the first step indicated on page 467, and there remains to ascertain what was the Initial Series corresponding to any one of these katuns; for when this connection is established, we shall have performed the second step mentioned on page 467, and the correlation of the Old Empire

chronology with that of our own Christian Era will be complete, and if this method and procedure are correct, the age of the Old Empire cities will have been ascertained more accurately than the age of any cities of antiquity in the Old World.

In 1900 Mr. E. H. Thompson, working under the auspices of the Peabody Museum of Harvard University, uncovered at the ruins of Chichen Itza in northern Yucatan (see plate 1), in that part of the city known as Old Chichen Itza, a very remarkable hieroglyphic text inscribed on the front and under side of a stone lintel. This was found to present no less than the Initial Series 10.2.9.1.9 9 Muluc 7 Zac, and was the first count of its kind discovered in Yucatan. Indeed, since then only two others have been found, so that at the present time there are only three Initial Series known throughout the length and breadth of the peninsula.¹

The importance of this discovery can not be overestimated. It was the first definite proof that Initial Series dating had carried over into the New Empire at all, and the date which it records is such as to indicate that it was practically contemporaneous with the closing dates of the Old Empire cities in the south. Indeed, subsequently (1918), the writer discovered a Period Ending date on the front of this lintel, 331 days later than its Initial Series date, which shows that it was exactly contemporaneous with the latest date in the south, namely, the lahuntun-ending 10.2.10.0.0 2 Ahau 13 Chen on Stela 2 at Quen Santo; and it may be assumed that this lintel originally came from a temple that had been dedicated on that lahuntun-ending.²

Granting the truth of this assumption, now generally admitted, the problem of correlating the Old and New Empire chronologies, that is, the Initial Series and the *u kahlay katunob*, then resolved itself into finding out, first, on how many different lahuntun-endings 2 Ahau Chichen Itza had been occupied, and second, which one of these had 10.2.10.0.0 for its corresponding Initial Series number.

But in the *u kahlay katunob*, no lahuntun-endings are recorded, only the katun-endings, and, therefore, before we can attempt to fit this particular lahuntun into its proper place in the *u kahlay katunob*, it is first necessary to ascertain in just what katun 10.2.10.0.0 2 Ahau 13 Chen fell. This was katun 10.3.0.0.0 1 Ahau 3 Yaxkin, or, as it would have been recorded in the *u kahlay katunob*, simply Katun 1 Ahau. Our first step, therefore, is to find all the Katuns 1 Ahau in the *u kahlay katunob* on page 499 during which Chichen Itza is declared to have been occupied.

It will be found that there are five Katuns 1 Ahau in this table; but since Chichen Itza was not even discovered until nearly a century after the first one had passed (Katun 1 Ahau, ending in 373.915 A. D.), and since the third one (Katun 1 Ahau, ending in 886.453) occurred at a time when Chichen Itza is clearly stated to have been abandoned, only the second, fourth, and fifth occurrences concern us here, namely:

Katun 1 Ahau, 630.184 A. D.

Katun 1 Ahau, 1142.722 A. D.

Katun 1 Ahau, 1398.991 A. D.

If our method and procedure have been correct up to this point, one of these three Katuns 1 Ahau is 10.3.0.0.0 1 Ahau 3 Yaxkin, in which the lahuntun-ending 10.2.10.0.0 2 Ahau 13 Chen fell. Let us next substitute this Initial Series for each of the above three Katuns 1 Ahau, and note the effects of the resulting correlations.

¹This one at Chichen Itza, that on Stela 1 at Tulum, and the one on the back wall of the Temple of the Initial Series at Holactun (Xcalumkin). This Chichen Itza lintel, Stela 9 at Uaxactun, and the Tuxtla Statuette, are, in the writer's opinion, the three most important texts in the Corpus Inscriptionum Mayarum.

²Although this lintel itself dated from the earliest period of the city's occupation, it was found in a position clearly indicating secondary usage in a temple of the Toltec or Nahua Period, supported by a pair of large Atlantean figures. These Atlantean figures were a purely Nahuatl development, and could hardly have been made until about 6 centuries after the lintel itself was carved.

If 10.3.0.0.0 were the Initial Series corresponding to the last of these three, then by counting back through the sequence 23 katuns from 1398.991, we will reach Katun 8 Ahau, 945.592 A. D., as the beginning of Cycle 9, *i. e.*, 9.0.0.0.0 8 Ahau 13 Ceh. This is true because 9.0.0.0.0 is just 23 katuns earlier than 10.3.0.0.0. That is to say, under this correlation, all the cities of the Old Empire (see figure 69) flourished approximately from 950 to 1350 A. D.; further, that Chichen Itza was discovered in 7.15.0.0.0 6 Ahau 18 Chen, 25 katuns earlier; and finally, that the mythological beginning of the *u kahlay katunob* goes back to 7.1.0.0.0 8 Ahau 18 Xul, 14 katuns still earlier.

This correlation is impossible on the face of it. It would make the Old Empire cities, Copan, Tikal, Palenque, Yaxchilan, Piedras Negras, etc., the contemporaries of the New Empire cities, Chichen Itza, Uxmal, Mayapan, Izamal, Kabah, Labna, etc., an impossible condition from the archæological evidence. It would make the discovery of Chichen Itza, a New Empire city, date from Cycle 7, or more than two centuries before the earliest contemporaneous date known anywhere in the Corpus Inscriptionum Mayarum, *i. e.*, the Tuxtla Statuette, and finally, it would carry the record of historical events in *Yucatan* back to a period (Cycle 7) when it is extremely doubtful whether the Maya chronological system had yet even been devised. So impossible are these conditions, from the historic as well as the archæologic point of view, that this correlation may be rejected outright.

If 10.3.0.0.0 was the Initial Series corresponding to the second of these three Katuns 1 Ahau (*i. e.*, Katun 1 Ahau, 1142.722 A. D.), then the beginning of Cycle 9 would fall in Katun 8 Ahau, 689.323 A. D., and the discovery of Chichen Itza in 8.8.0.0.0 6 Ahau 18 Kayab and the beginning of the whole series in 7.14.0.0.0 8 Ahau 18 Kankin. This would make the Old Empire cities flourish from approximately 700 to 1100 A. D.; it would carry the discovery of Chichen Itza back to within 35 years of the date of the Tuxtla Statuette and actually 130 years previous to the date of the earliest stela known, Stela 9 at Uaxactun, and would make the series of katuns begin in 7.14.0.0.0 8 Ahau 18 Kankin, probably before the Maya chronological system had been devised, as already noted.

While somewhat better than the first correlation, this second is open to the same objections, and gives rise to too impossible conditions, from the historic as well as the archæologic point of view, and it also may be rejected in the present connection.

This leaves us but one more Katun 1 Ahau during which Chichen Itza is said to have been occupied, namely, Katun 1 Ahau, 630.184 A. D., and substitution of the Initial Series 10.3.0.0.0 for this katun leads to a surprising result at the beginning of the series, as well as giving rise to minor archæologic agreements, all tending to indicate that this is the true correlation.

If 10.3.0.0.0 were the Initial Series corresponding to Katun 1 Ahau, 630.184 A. D., then the first katun in the series on page 499, Katun 8 Ahau, 176.785 A. D., will be none other than 9.0.0.0.0 8 Ahau 13 Ceh, the beginning of Cycle 9. Here, indeed, is a remarkable coincidence if nothing more, namely, that by the use of this correlation the first katun in the series is found to be 9.0.0.0.0, or the beginning of the cycle during which the Maya attained their first great cultural brilliance, and a period which ever afterward, and especially in more decadent later times, must have appeared to them to have been the Golden Age of their race and civilization.

The entry against this date—the departure from the land of Tulapan and the house Nonoual from Zuiva at the west—is almost certainly of a mythological character, as Brinton has pointed out.¹ These proper names belong to the Quetzalcoatl myth in Aztec mythology, Tulapan (literally, “Standard of Tula”) being the name

¹Brinton, 1882, pp. 110–113.

of the famous Toltec city ruled by the God Quetzalcoatl, Nonoual or Nonohual being a mountain near the sacred city where resided the sister of Quetzalcoatl, and Zuiva or Zuiua being the topmost heaven in Aztec cosmogony, where the father of Quetzalcoatl lived and where that god himself was born.

These mythological elements, in the opening entry of the *u kahlay katunob*, all of a Nahua nature, the writer believes, were not grafted onto the Maya historical records until a very much later time than that to which they purport to refer, indeed, not until after 1200 A. D., when the Nahua influence first entered Yucatan, and the fact that the entry against the first katun in the series is clearly of a mythological character, indicates why the series itself may have been started with 9.0.0.0.0 8 Ahau 13 Chen as developed by this particular correlation. What more natural than that the Maya of the New Empire should have started their chronicles from the beginning of that cycle which witnessed their first rise to power, and from a date which later must have become associated by them with the very birth of their civilization, religion, art, and architecture. This event was later invested with a mythological character, as we have seen and assigned a date which fifteen centuries later, *i. e.*, in Cycle 12, must itself have attained a traditional importance second to none, and must have seemed the most appropriate date of all with which to begin their chronicles.

Another strong point in support of the accuracy of this particular correlation is the orderly and logical sequence of events, as established by the archæological evidence to which it gives rise. For example, it makes the discovery of Chichen Itza take place in 9.14.0.0.0 at the close of the Middle Period, and gives sufficient time for knowledge of that important event to have spread among the southern cities before their abandonment, which began about a century later. (See Chapter V.)

Again, it makes the Chichen Itza Initial Series contemporaneous with the closing dates in the south, thereby agreeing with the archæological evidence at Chichen Itza itself, where the Initial Series lintel was found in what is generally recognized as having been the oldest part of the city; and it also agrees with the documentary evidence, the *u kahlay katunob* in the Books of Chilan Balam, which indicate that Yucatan was first colonized from the southeast, Bakhalal and Chichen Itza being the first regions occupied, the former contiguous to the northeastern corner of Peten, where the latest Old Empire dates are found.

Weighing all the evidence, positive as well as negative, historical as well as archæological, the writer believes the Katun 1 Ahau which ended in 630.184 A. D. in the *u kahlay katunob* on page 499, was the one in which the Chichen Itza lintel was dedicated, and that its corresponding Initial Series was therefore 10.3.0.0.0 1 Ahau 3 Yaxkin. The principal points leading to this conclusion follow:

(1) The improbable and unsatisfactory conditions from the historical and archæological points of view, to which the other two correlations under this method give rise, as, for example, the discovery of Chichen Itza in 7.15.0.0.0 or 8.8.0.0.0, or the placing of the Old Empire cities as late as 950 to 1350 A. D. or 700 to 1100 A. D.

(2) The satisfactory conditions from the historical and archæological points of view to which the correlation suggested gives rise, as, for example, the rise of the Old Empire about 200 A. D.; the discovery of Chichen Itza about 450 A. D.; and the collapse of the Old Empire and the rise of the New Empire about the same time, *i. e.* shortly after 610 A. D.

(3) The significant fact that this correlation of the *u kahlay katunob* and the Long Count gives to the first katun in the record the Initial Series number 9.0.0.0.0, not only a round number in the Maya chronological system, but also the beginning of the particular cycle during which the Maya first emerged from barbarism to a semicivilized state, and therefore a highly appropriate point at which in later times to have begun their historical records.

(4) The flat contradictions with the archæological evidence developed by the only other correlation at all likely to be correct, namely, that suggested by Goodman and supported by the tun series on page 66 of the Chronicle of Oxkutzcab, to be examined later.

Correlation of the Initial Series, u kahlay katunob and Christian chronology.

Initial Series number.	U kahlay katunob.	Christian chronology.	Event.
9. 0.0.0.0.	8 Ahau 13 Ceh.	A.D. 176.785	Leave Tulapan.
9. 1.0.0.0.	6 Ahau 13 Yaxkin...	196.498	
9. 2.0.0.0.	4 Ahau 13 Uo.	216.211	
9. 3.0.0.0.	2 Ahau 18 Muan...	235.924	
9. 4.0.0.0.	13 Ahau 18 Yax.	255.637	Arrive Chacnouitan.
9. 5.0.0.0.	11 Ahau 18 Tzec.	275.350	
9. 6.0.0.0.	9 Ahau 3 Uayeb.	295.063	
9. 7.0.0.0.	7 Ahau 3 Kankin.	314.776	
9. 8.0.0.0.	5 Ahau 3 Chen.	334.489	
9. 9.0.0.0.	3 Ahau 3 Zotz.	354.202	
9. 10.0.0.0.	1 Ahau 8 Kayab.	373.915	
9. 11.0.0.0.	12 Ahau 8 Ceh.	393.628	
9. 12.0.0.0.	10 Ahau 8 Yaxkin.	413.341	
9. 13.0.0.0.	8 Ahau 8 Uo.	433.054	
9. 14.0.0.0.	6 Ahau 13 Muan.	452.767	Chichen Itza discovered.
9. 15.0.0.0.	4 Ahau 13 Yax.	472.480	Bakhalal occupied.
9. 16.0.0.0.	2 Ahau 13 Tzec.	492.193	
9. 17.0.0.0.	13 Ahau 18 Cumhu.	511.906	Pop counted in order.
9. 18.0.0.0.	11 Ahau 18 Mac.	531.619	Chichen Itza occupied.
9. 19.0.0.0.	9 Ahau 18 Mol.	551.332	
10. 0.0.0.0.	7 Ahau 18 Zip.	571.045	
10. 1.0.0.0.	5 Ahau 3 Kayab.	590.758	
10. 2.0.0.0.	3 Ahau 3 Ceh.	610.471	
10. 3.0.0.0.	1 Ahau 3 Yaxkin.	630.184	
10. 4.0.0.0.	12 Ahau 3 Uo.	649.897	
10. 5.0.0.0.	10 Ahau 8 Muan.	669.610	Chichen Itza abandoned.
10. 6.0.0.0.	8 Ahau 8 Yax.	689.323	
10. 7.0.0.0.	6 Ahau 8 Tzec.	709.036	Chakanputun occupied.
10. 8.0.0.0.	4 Ahau 13 Cumhu.	728.749	
10. 9.0.0.0.	2 Ahau 13 Mac.	748.462	
10. 10.0.0.0.	13 Ahau 13 Mol.	768.175	
10. 11.0.0.0.	11 Ahau 13 Zip.	787.888	
10. 12.0.0.0.	9 Ahau 18 Pax.	807.601	
10. 13.0.0.0.	7 Ahau 18 Zac.	827.314	
10. 14.0.0.0.	5 Ahau 18 Xul.	847.027	
10. 15.0.0.0.	3 Ahau 18 Pop.	866.740	
10. 16.0.0.0.	1 Ahau 3 Muan.	886.453	
10. 17.0.0.0.	12 Ahau 3 Yax.	906.166	
10. 18.0.0.0.	10 Ahau 3 Tzec.	925.879	
10. 19.0.0.0.	8 Ahau 8 Cumhu.	945.592	Chakanputun abandoned.
11. 0.0.0.0.	6 Ahau 8 Mac.	965.305	The Itza return to Chichen Itza.
11. 1.0.0.0.	4 Ahau 8 Mol.	985.018	
11. 2.0.0.0.	2 Ahau 8 Zip.	1004.731	The Xiu found Uxmal. League of Mayapan begins.
11. 3.0.0.0.	13 Ahau 13 Pax.	1024.444	
11. 4.0.0.0.	11 Ahau 13 Zac.	1044.157	
11. 5.0.0.0.	9 Ahau 13 Xul.	1063.870	
11. 6.0.0.0.	7 Ahau 13 Pop.	1083.583	
11. 7.0.0.0.	5 Ahau 18 Kankin.	1103.296	
11. 8.0.0.0.	3 Ahau 18 Chen.	1123.009	
11. 9.0.0.0.	1 Ahau 18 Zotz.	1142.722	
11. 10.0.0.0.	12 Ahau 3 Cumhu.	1162.435	
11. 11.0.0.0.	10 Ahau 3 Mac.	1182.148	
11. 12.0.0.0.	8 Ahau 3 Mol.	1201.861	Plot of Hunnac Ceel. League of Mayapan ends.
11. 13.0.0.0.	6 Ahau 3 Zip.	1221.574	
11. 14.0.0.0.	4 Ahau 8 Pax.	1241.287	
11. 15.0.0.0.	2 Ahau 8 Zac.	1261.000	
11. 16.0.0.0.	13 Ahau 8 Xul.	1280.713	
11. 17.0.0.0.	11 Ahau 8 Pop.	1300.426	
11. 18.0.0.0.	9 Ahau 13 Kankin.	1320.139	
11. 19.0.0.0.	7 Ahau 13 Chen.	1339.852	
12. 0.0.0.0.	5 Ahau 13 Zotz.	1359.565	
12. 1.0.0.0.	3 Ahau 18 Kayab.	1379.278	
12. 2.0.0.0.	1 Ahau 18 Ceh.	1398.991	
12. 3.0.0.0.	12 Ahau 18 Yaxkin.	1418.704	
12. 4.0.0.0.	10 Ahau 18 Uo.	1438.417	
12. 5.0.0.0.	8 Ahau 3 Pax.	1458.130	Mayapan destroyed by the Xiu.
12. 6.0.0.0.	6 Ahau 3 Zac.	1477.843	
12. 7.0.0.0.	4 Ahau 3 Xul.	1497.556	The pestilence.
12. 8.0.0.0.	2 Ahau 3 Pop.	1517.269	Spaniards first seen. The small-pox.
12. 9.0.0.0.	13 Ahau 8 Kankin.	1536.982	The water-bringer Ah Napot Xiu dies.
12. 10.0.0.0.	11 Ahau 8 Chen.	1556.695	Spanish Conquest. Merida founded.
12. 11.0.0.0.	9 Ahau 8 Zotz.	1576.408	Bishop Toral arrives.
12. 12.0.0.0.	7 Ahau 13 Kayab.	1596.121	Bishop Landa dies.
12. 13.0.0.0.	5 Ahau 13 Ceh.	1615.834	
12. 14.0.0.0.	3 Ahau 13 Yaxkin.	1635.547	Father Fuensalida visits Lake Peten Itza.

Finally, having established this one point of contact between the *u kahlay katunob* and the Initial Series, it is simply a matter of counting the Initial Series recording katun-endings either backward or forward from this point in the *u kahlay katunob* on page 499 in order to reach the Initial Series corresponding to any particular katun thereof, *i. e.*, the second step on page 467. And having established this point of contact with the *u kahlay katunob*, any Initial Series may be reduced to its corresponding equivalent in Christian chronology under the correlation already established between the *u kahlay katunob* and the Christian years under step one on page 467, which completes the process of correlation there set forth.

For the reader's convenience these corresponding Initial Series have been inserted in the table on page 503, which is otherwise the same as that on page 499.

No equivalent values in the Christian Era have been given for the different hotun-endings in Chapters II, III, and IV and Appendix VIII, since exact correlation (*i. e.* to the day) of the Long Count and Christian chronology has yet to be effected. However, approximate correlation (*i. e.*, to within a year, and possibly even to within 49 days) now appears reasonably certain, and the following table of approximate equivalents is based upon the alinement of the two chronologies suggested in the foregoing pages.

Table showing the equivalent dates in the Christian Era for the corresponding hotun-endings of the Old Empire.

THE EARLY PERIOD.												
										A.D.		A.D.
8.14.15.0.0	12	Ahau	8	Uo	73	9.2.10.0.0	3	Ahau	8	Cumhu	226	
8.15.0.0.0	5	Ahau	3	Pop	78	9.2.15.0.0	9	Ahau	3	Kayab	230	
8.15.5.0.0	11	Ahau	3	Cumhu	83	9.3.0.0.0	2	Ahau	18	Muan	235	
8.15.10.0.0	4	Ahau	18	Pax	88	9.3.5.0.0	8	Ahau	13	Kankin	240	
8.15.15.0.0	10	Ahau	13	Muan	92	9.3.10.0.0	1	Ahau	8	Mac	245	
8.16.0.0.0	3	Ahau	8	Kankin	97	9.3.15.0.0	7	Ahau	3	Ceh	250	
8.16.5.0.0	9	Ahau	3	Mac	102	9.4.0.0.0	13	Ahau	18	Yax	255	
8.16.10.0.0	2	Ahau	18	Zac	107	9.4.5.0.0	6	Ahau	13	Chen	260	
8.16.15.0.0	8	Ahau	13	Yax	112	9.4.10.0.0	12	Ahau	8	Mol	265	
8.17.0.0.0	1	Ahau	8	Chen	117	9.4.15.0.0	5	Ahau	3	Yaxkin	270	
8.17.5.0.0	7	Ahau	3	Mol	122	9.5.0.0.0	11	Ahau	18	Tzec	275	
8.17.10.0.0	13	Ahau	18	Xul	127	9.5.5.0.0	4	Ahau	13	Zotz	280	
8.17.15.0.0	6	Ahau	13	Tzec	132	9.5.10.0.0	10	Ahau	8	Zip	285	
8.18.0.0.0	12	Ahau	8	Zotz	137	9.5.15.0.0	3	Ahau	3	Uo	290	
8.18.5.0.0	5	Ahau	3	Zip	142	9.6.0.0.0	9	Ahau	3	Uayab	295	
8.18.10.0.0	11	Ahau	18	Pop	147	9.6.5.0.0	2	Ahau	18	Kayab	299	
8.18.15.0.0	4	Ahau	18	Cumhu	152	9.6.10.0.0	8	Ahau	13	Pax	304	
8.19.0.0.0	10	Ahau	13	Kayab	157	9.6.15.0.0	1	Ahau	8	Muan	309	
8.19.5.0.0	3	Ahau	8	Pax	161	9.7.0.0.0	7	Ahau	3	Kankin	314	
8.19.10.0.0	9	Ahau	3	Muan	166	9.7.5.0.0	13	Ahau	18	Ceh	319	
8.19.15.0.0	2	Ahau	18	Mac	171	9.7.10.0.0	6	Ahau	13	Zac	324	
9.0.0.0.0	8	Ahau	13	Ceh	176	9.7.15.0.0	12	Ahau	8	Yax	329	
9.0.5.0.0	1	Ahau	8	Zac	181	9.8.0.0.0	5	Ahau	3	Chen	334	
9.0.10.0.0	7	Ahau	3	Yax	186	9.8.5.0.0	11	Ahau	18	Yaxkin	339	
9.0.15.0.0	13	Ahau	18	Mol	191	9.8.10.0.0	4	Ahau	13	Xul	344	
9.1.0.0.0	6	Ahau	13	Yaxkin	196	9.8.15.0.0	10	Ahau	8	Tzec	349	
9.1.5.0.0	12	Ahau	8	Xul	201	9.9.0.0.0	3	Ahau	3	Zotz	354	
9.1.10.0.0	5	Ahau	3	Tzec	206	9.9.5.0.0	9	Ahau	18	Uo	359	
9.1.15.0.0	11	Ahau	18	Zip	211	9.9.10.0.0	2	Ahau	13	Pop	364	
9.2.0.0.0	4	Ahau	13	Uo	216	9.9.15.0.0	8	Ahau	13	Cumhu	368	
9.2.5.0.0	10	Ahau	8	Pop	221	9.10.0.0.0	1	Ahau	8	Kayab	373	
THE MIDDLE PERIOD.												
										A.D.		A.D.
9.10.5.0.0	7	Ahau	3	Pax	378	9.12.15.0.0	2	Ahau	13	Zip	428	
9.10.10.0.0	13	Ahau	18	Kankin	383	9.13.0.0.0	8	Ahau	8	Uo	433	
9.10.15.0.0	6	Ahau	13	Mac	388	9.13.5.0.0	1	Ahau	3	Pop	437	
9.11.0.0.0	12	Ahau	8	Ceh	393	9.13.10.0.0	7	Ahau	3	Cumhu	442	
9.11.5.0.0	5	Ahau	3	Zac	398	9.13.15.0.0	13	Ahau	18	Pax	447	
9.11.10.0.0	11	Ahau	18	Chen	403	9.14.0.0.0	6	Ahau	13	Muan	452	
9.11.15.0.0	4	Ahau	13	Mol	408	9.14.5.0.0	12	Ahau	8	Kankin	457	
9.12.0.0.0	10	Ahau	8	Yaxkin	413	9.14.10.0.0	5	Ahau	3	Mac	462	
9.12.5.0.0	3	Ahau	3	Xul	418	9.14.15.0.0	11	Ahau	18	Zac	467	
9.12.10.0.0	9	Ahau	18	Zotz	423	9.15.0.0.0	4	Ahau	13	Yax	472	

Table showing the equivalent dates in the Christian Era for the corresponding hotun-endings of the Old Empire—continued.

THE GREAT PERIOD.

	A.D.		A.D.
9.15. 5.0.0 10 Ahau 8 Chen.....	477	9.19. 0.0.0 9 Ahau 18 Mol.....	551
9.15.10.0.0 3 Ahau 3 Mol.....	482	9.19. 5.0.0 2 Ahau 13 Yaxkin.....	556
9.15.15.0.0 9 Ahau 18 Xul.....	487	9.19.10.0.0 8 Ahau 8 Xul.....	561
9.16. 0.0.0 2 Ahau 13 Tzec.....	492	9.19.15.0.0 1 Ahau 3 Tzec.....	566
9.16. 5.0.0 8 Ahau 8 Zotz.....	497	10. 0. 0.0.0 7 Ahau 18 Zip.....	571
9.16.10.0.0 1 Ahau 3 Zip.....	502	10. 0. 5.0.0 13 Ahau 13 Uo.....	575
9.16.15.0.0 7 Ahau 18 Pop.....	506	10. 0.10.0.0 6 Ahau 8 Pop.....	580
9.17. 0.0.0 13 Ahau 18 Cumhu.....	511	10. 0.15.0.0 12 Ahau 8 Cumhu.....	585
9.17. 5.0.0 6 Ahau 13 Kayab.....	516	10. 1. 0.0.0 5 Ahau 3 Kayab.....	590
9.17.10.0.0 12 Ahau 8 Pax.....	521	10. 1. 5.0.0 11 Ahau 18 Muan.....	595
9.17.15.0.0 5 Ahau 3 Muan.....	526	10. 1.10.0.0 4 Ahau 13 Kankin.....	600
9.18. 0.0.0 11 Ahau 18 Mac.....	531	10. 1.15.0.0 10 Ahau 8 Mac.....	605
9.18. 5.0.0 4 Ahau 13 Ceh.....	536	10. 2. 0.0.0 3 Ahau 3 Ceh.....	610
9.18.10.0.0 10 Ahau 8 Zac.....	541	10. 2. 5.0.0 9 Ahau 18 Yax.....	615
9.18.15.0.0 3 Ahau 3 Yax.....	546	10. 2.10.0.0 2 Ahau 13 Chen.....	620

At the Nineteenth International Congress of Americanists, held in Washington in 1915, the writer proposed a division of Maya history into two general epochs, the Old Empire and the New Empire, both of which were further subdivided into several shorter periods.¹

On the basis of the above correlation, the duration of these several periods expressed in the Old Empire chronology (the Initial Series), the New Empire chronology (the *u kahlay katunob*), and in Christian chronology is given below.

Table showing the principal divisions of Maya history.

THE OLD EMPIRE

THE NEW EMPIRE

I. *The Early Period.*

The earliest times to 9.10.0.0.0 1 Ahau 8 Kayab.

The earliest times to Katun 1 Ahau.

The earliest times to 373.915 A. D.

II. *The Middle Period.*

9.10.0.0.0 1 Ahau 8 Kayab to 9.15.0.0.0 4 Ahau 13 Yax.

Katun 1 Ahau to Katun 4 Ahau.

373.915 A. D. to 472.480 A. D.

III. *The Great Period.*

9.15.0.0.0 4 Ahau 13 Yax to 10.2.0.0.0 3 Ahau 3 Ceh.

Katun 4 Ahau to Katun 3 Ahau.

472.480 A. D. to 610.471 A. D.

IV. *The Colonization Period.*

9.14.0.0.0 6 Ahau 13 Muan to 10.6.0.0.0 8 Ahau 8 Yax.

Katun 6 Ahau to Katun 8 Ahau.

452.767 A. D. to 689.323 A. D.

V. *The Transitional Period.*

10.6.0.0.0 8 Ahau 8 Yax to 11.1.0.0.0 4 Ahau 8 Mol.

Katun 8 Ahau to Katun 4 Ahau.

689.323 A. D. to 985.018 A. D.

VI. *The Renaissance Period.*

11.1.0.0.0 4 Ahau 8 Mol to 11.12.0.0.0 8 Ahau 3 Mol.

Katun 4 Ahau to Katun 8 Ahau.

985.018 A. D. to 1201.861 A. D.

VII. *The Toltec Period.*

11.12.0.0.0 8 Ahau 3 Mol to 12.5.0.0.0 8 Ahau 3 Pax.

Katun 8 Ahau to Katun 8 Ahau.

1201.861 A. D. to 1458.130 A. D.

VIII. *The Final Period.*

12.5.0.0.0 8 Ahau 3 Pax to 12.9.5.0.0 6 Ahau 3 Mac.

Katun 8 Ahau to Hotun 6 Ahau.

1458.130 A. D. to 1541.910 A. D.

¹See Morley, 1917a.

In utilizing the foregoing table it should be noted that the closing period of the Old Empire (*i. e.*, the Great Period) was practically contemporaneous with the opening period of the New Empire (*i. e.*, the Colonization Period), that is, the latter covers the time during which Yucatan was being colonized from the Old Empire cities, the decline and extinction of the one being coincident with the rise of the other; and further that the two main epochs of Maya history, the Old and the New Empires are not only chronological subdivisions but also that the area covered by each corresponds to a definite geographical unit as well, the former being restricted to the southern half of the Maya region, and the latter to the northern half, the Peninsula of Yucatan. Finally, that the several periods into which each is divided agree closely, not only with the archæological evidence—the monuments, architecture and art—but also with the documentary evidence—the *u kahlay katunob* in the Books of Chilán Balam.

CORRELATION OF THE U KAHLAY KATUNOB AND CHRISTIAN CHRONOLOGY INDICATED BY PAGE 66 OF THE CHRONICLE OF OXKUTZCAB.

In the seven events upon which the writer's correlation of Christian chronology and the *u kahlay katunob* is based, it will be noted that the native authorities pay no attention to the month-days on which the corresponding katuns ended. Thus all agree that Merida was founded in a Katun 11 Ahau, but what particular Katun 11 Ahau it was, *i. e.*, what was its corresponding month-part, not one specifies. Again, all agree that Bishop Toral arrived in a Katun 9 Ahau and that Bishop Landa died in a Katun 7 Ahau, but when it comes to the month-days of these two katun-endings, all the authorities are again silent. It is because these month-days are wanting that it was necessary to devise some other method of correlating the *u kahlay katunob* with the Initial Series, as, for example, the use of the Chichen Itza lintel already described.

It must be remembered that as described in the *u kahlay katunob*, *i. e.*, without its corresponding Initial Series number and month-day, any given katun can recur after an interval of 256.27 years, but if its corresponding month-day is given, even though its Initial Series number be omitted, it can not recur until after a lapse of 949 katuns or 18,707.70 years. Therefore, had the month-days of the katuns in which these several events are said to have occurred also been recorded, assuming the record to be correct, a direct correlation between the *u kahlay katunob* and the Initial Series could have been easily effected.

Unfortunately such was not the custom in the *u kahlay katunob*, and in the single event, the death of Napot Xiu, where the month-position is also given, there is disagreement as to what it was, III, IV, and IX (?) giving 9 Imix 18 Zip, and V 10 Zip, although by restoring the word *uaxac* the last could be made to agree with the first three. But even granting this change in V, accepting the statements of III, IV, and IX that Napot Xiu died on a day 9 Imix 19 Zip which fell in a year 4 Kan, this event could not have taken place in 1536, as stated in III and IV, but in 1545 instead, unless indeed we throw over the great preponderance of the evidence, which, save for these three passages, agrees that the latter part of 1536 was in a year 8 Cauac, and not in a year 4 Kan.

To do this would be to violate too many authorities, and it may be accepted as certain that Napot Xiu did not die either in a year 4 Kan or on a day 9 Imix 19 Zip. In fact, the only consistent feature of these three passages is that 9 Imix 19 Zip did occur in a year 4 Kan; but association of this year with the Christian year 1536 and with a Katun 13 Ahau must be rejected as impossible in the light of practically all the other evidence.

One of our 12 sources, however, page 66 from the Chronicle of Oxkutzcab (V), does give the month-parts of these period-ending dates in a modified form. That is, although no katun-ending is there specified, a series of 13 tun-endings is given, including not only the ending-days and their positions in the months, but also the

Transcription and Translation of page 66 of the Chronicle of Oxkutzcab.

ORIGINAL.

153. paxci cah tumen maya-cinlal lae ychil hab 1534
años
. . . he tun tu vaxaclahun yaxkin-e hoil kan
ahcuch-hab tu hunte pop
1535 ahau he tun tu vucte yaxkin-ne 1535 años vac
muluc ahcuch-hab tu
hunte pop
1536 he tun tu bulucte (pop)* ceh años vuc hix ahcuch
hab tu hunte pop ox ahau
1537 tu vucte yaxkin-e 1537 años vaxacil cavac tu hunte
pop cinciob ah-
pulhaob te otzmal-e heklaob lae ah-tz'un tutul
xiu yetel ah-çiyah
napuc chi ye. namay che ye. namay tun ye.
ah-men evan ha
vinicob te mani-e ahpulhaob ti chicheen ytza
cuchi he u-putz'aho-
b-e nahau veeh napot covoh tu lahun hi çip
lahca ahau hi he
tun tu cate yaxkin-e bay bin kahebal
1538 años bolo kan ahcuch-hau tu hunte pop vchci
chac-ykal u- . . .
hintah cimil lae vaxac ahau he tun tu vaclahun
xul-e
1539 años lahun muluc tu hunte pop can ahau he tun
tu buluc-
te xul-e
1540 años buluc hix tu hunte pop oxlahun ahau he tun
tu vucte xul-e
1541 años lahcabil cavac tu hunte pop bolon ahau he
tun tu
cate xul-e
1542 años oxlahun kan tu hunte pop-i u-hetz'ci cah
espanoresob
ti-hoo cahciob yaxhop'ci patanob-e tumen
ah-maniob yet
u-provinciaiil ho ahau tu vaclahunte çeec
1543 años hun muluc tu hunte pop cinciob ah-tz'itz'om-
tun tumen
u-katun espayoresob he u-capitannil-e alonso
lopez (lahun)*
hun ahau hi tu bulucte çeec ca hix u-hunte pop
1544 años lahun ahau tu vate çeec
1545 años oxlahun cavac tu hunte pop hop'ci Xpotia-
noil tumen
frayleçob vay ti cah lae he u-kaba u-padreillob
lae fray
luis villapando fray diego de vehar fray ju°
de la puerta
fray mechor de benabente fray ju° de herrera
fray angel
pocob-tok u-hetz'ahob te ti cah ti-ho-e
vac ahau he tun tu hunte çeec
helel en 29 de mayo de 1685 años tin-hochah
vchben hun heklae
calacteres v-kaba Anares ten cen don
D JOAN XIU
(rúbrica)

TRANSLATION.

[1533] The tun on 18 Yaxkin [2 Mol]. The town was
desolated because of the Maya dead in the year
1534, 5 Kan being the year-bearer, on Pop 1st, . . .
Ahau the tun on 7 [17] Yaxkin.
1535 6 Muluc the year-bearer, on Pop 1st,
the tun on 11 Ceh [12 Yaxkin].
1536 7 Ix the year-bearer on Pop 1st, 3 Ahau [the tun]
on 7 Yaxkin.
1537 8 Cauac on Pop 1st, when there died the rain-
bringers at Otzmal, namely, Ahtz'un Tutul
Xiu, and Ahziyah Napuc Chi, and Namay
Che, and Namay Tun, and the priest Evan,
. men at Mani they were, rain bringers
at Chichén Itzá, then, and there escaped
Nahau Veeh, Napot Covoh; on the 10th
[? 18th] of Zip it took place, in 12 Ahau it was,
the tun on 2 Yaxkin, that it may be remem-
bered.
1538 9 Kan the year-bearer on Pop 1st, when there
happened a hurricane [causing] death, 8 Ahau
the tun on 16 [17] Xul.
1539 10 Muluc on Pop 1st, 4 Ahau the tun on 11 [12]
Xul.
1540 11 Ix on Pop 1st, 13 Ahau the tun on [7 Xul].
1541 12 Cauac on Pop 1st, 9 Ahau the tun on 2 Xul.
1542 13 Kan on Pop 1st, when the Spaniards founded
the city Ti-Hoo [Merida], when they settled,
and the tributes first began through those of
Mani, and the province [was established],
5 Ahau on 16 [17] Tzec.
1543 1 Muluc on Pop 1st, when there died those of
Tz'itz'omtun at the hands of the Spaniards
in a battle, their captain being Alonso López;
1 Ahau it happened, [the tun] on 11 [12]
Tzec.
1544 2 Ix on Pop 1st, 10 Ahau on 6 [7] Tzec.
1545 13 [3] Cauac on Pop 1st, when began Christianity
through the friars here in the town; these
were the names of the padres, fray Luis
Villapando, fray Diego de Vehar, fray Juan
de la Puerta, fray Mechor de Benabente, fray
Juan de Herrera, fray Angel,
they founded at the city, ti-Hoo, 6 Ahau the
tun on 1 [2] Tzec.

Now on the 29th of May in the year 1685 I have copied
this from an ancient book, namely in char-
acters as they are called, Anares.
I, DON JOAN XIU.

year-bearers of the Maya years in which the corresponding tun-endings fell, and the corresponding Christian years as well. Now, if this series is correct, and if we can pick out one of these 13 tun-endings as that of a katun-ending as well, then a direct correlation with the Long Count may be effected, as noted above.

This page of the Oxtutzcab chronicle is shown in figure 72, and the writer is indebted to Mr. William Gates for the transcription and translation of the Maya text given on the preceding page, as well as for the following notes.

NOTES BY MR. GATES.

Letters restored where the margin is torn are in italics in the Maya text. Dots mark the places where something is gone that can not be restored. No attempt has been made to change or correct, even when the meaning requires it; the reading at beginning of line 2 should thus be *ahau*, though the manuscript does not yield the needed letters. In the transcription hyphens have been added to assist the reading.

The words *pop* in line 5 and *lahun* in line 24 are crossed out in the manuscript by Juan Xiu, and corrected to *ceh* and *hun* respectively (marked by an asterisk (*) in the Maya text.)

There are a number of errors in the day and month numerals, difficult to account for if Juan Xiu was copying a text in European letters, but easy to understand if he was translating and copying from a "very ancient book in characters, an *analtehe*." Under 1545 *oxlahun cauac*, 13 Cauac, should be *ox cauac*, 3 Cauac.

The errors in the months will best appear from a tabulation, the first column showing what is actually written, and the second column what is clearly demanded by the whole text. In this connection, we find the first five lines much confused. An Ahau date for the tun is needed before the beginning of the fifth line, and also the 1536 in the margin is to be repeated before the *años* in the middle of the fifth line. Then the 1534 in the first line should be brought down to before the 5 Kan in the second, throwing the first tun and month date back under the year 1533, in default of which correction we would have 1534 supplied with one year-bearer and two tun dates. Making the above allowances in arrangement, we have:

As in the original.				Corrected.			
1533			18 Yaxkin.	4 Cauac	2 Ahau	2 Mol.	
1534	5 Kan	.. Ahau	7 Yaxkin.	5 Kan	11 Ahau	17 Yaxkin.	
1535	6 Muluc	.. . . .	11 Ceh.	6 Muluc	7 Ahau	12 Yaxkin.	
1536	7 Ix	3 Ahau	7 Yaxkin.	7 Ix	3 Ahau	7 Yaxkin.	
1537	8 Cauac	12 Ahau	2 Yaxkin.	8 Cauac	12 Ahau	2 Yaxkin.	
1538	9 Kan	8 Ahau	16 Xul.	9 Kan	8 Ahau	17 Xul.	
1539	10 Muluc	4 Ahau	11 Xul.	10 Muluc	4 Ahau	12 Xul.	
1540	11 Ix	13 Ahau	7 . . .	11 Ix	13 Ahau	7 Xul.	
1541	12 Cauac	9 Ahau	2 Xul.	12 Cauac	9 Ahau	2 Xul.	
1542	13 Kan	5 Ahau	16 Tzec.	13 Kan	5 Ahau	17 Tzec.	
1543	1 Muluc	1 Ahau	11 Tzec.	1 Muluc	1 Ahau	12 Tzec.	
1544	2 Ix	10 Ahau	6 Tzec.	2 Ix	10 Ahau	7 Tzec.	
1545	13 Cauac	6 Ahau	1 Tzec.	3 Cauac	6 Ahau	2 Tzec.	

In the 13 years we therefore have one error in day-numerals, which may be disregarded; no errors at all in the Ahau count; seven cases where the month-numeral is minus 1, one where it is minus 10, four where it is correct, and one where it is plus 1; besides the confusion between Ceh and Yaxkin at the beginning. It is curious that in more than half of the entries this minus-1 error should occur; one can hardly suspect Juan Xiu of misreading the numerals regularly with just that error, but is tempted to surmise a confusion in transcribing, between two systems, one that of the original, the other one familiar to the Xiu, into which he sought to transfer the entries as pointed out elsewhere in this Appendix by Morley. The 18 Yaxkin is, however, the only figure correct under the old count, and the 1, 6, 11, 16 coefficients are wrong for either the old or the new.

One further possible error should be noted, of especial interest in the present connection. We have already found *vucte* for *vuclahunte* (under 1534), and *oxlahun*, a glaring error for *ox* (under 1545); and if then we see in *lahun çip*, 10 Zip as the day of the month in 1536 when the Otzmal event took place, a scribal error for *vaxaclahun çip*, or 18 Zip, we have the exact day of the month given by the Mani, Tizimin, and first Chumayel texts, for the death of the water-bringer Napot Xiu.

1534. The words *ychil hab 1534 años* require us to place the desolation and death just spoken of in that year, and not in 1533, as might have been meant had the words *ychil hab* not been used. If, as is quite likely, this desolation refers to the famine after a drought, followed by the locusts, as related by Landa, we may fairly put the failure of the rains in the season of 1533-34, bringing hunger later in 1534. With relations between the Cocom and Xiu as they are shown to have been, the projected mission to Chichen Itza would hardly have followed at once on a single year's drought; but after two years' continued famine, or just before the time for the rains in 1536, the urgency would have been pressing.

The word *cah*, generally translated town or city, means rather more than that, a place of habitation, and may refer to wider territory; it corresponds closely in general value to the Spanish *pueblo* or *población*.

Several archaisms in the language are to be noted, as *cinlal*, *cinciob*, for *cimlal*, *cimciob*; also the frequent use of the preposition *te* for *ti*, as we find it has come down in a few place-names in Yucatan like Tekax.

1537. I have translated *ahpulhaob* as rain-bringers, although with some doubts; *pul* has at times the meaning to throw away, whence a translation "water-throwers" (that is, into the *cenote* at Chichen Itza) has been suggested for its meaning here. But this has the disadvantage of making the water the indirect object, for which I can find no support. Further, the constant use of the word *pul* is as meaning to bring; it is used in a long list of compounds involving witchcraft, where it means to bring about the thing purposed, as a disease; and finally the identical compound *pul-ha* also means to bring water, in the sense of to urinate. As the purpose of the mission to the *cenote* was to bring the rains, although this happened to be through a throwing into the water, I am inclined to give it this magical interpretation, as one more in the Maya spirit, both grammatically and culturally.

Although the *ah-tz'un* Tutul Xiu is not here named *ah-pulha* Napot Tutul Xiu, one can hardly doubt that such was his full title and name, and that the two persons are identical. The *ah-tz'un* is one who leads, who opens the way through, passing on the road; he was one of the "*ah-pulhaob*," and was also the ruler of Mani, the *halach-vinic*, as stated on page 85 of the Chumayel; also, as stated in this latter passage, he not only *died* with the others at Otzmal, but was *killed* there; a tragedy going to the very roots of history and fate for the Maya, a thing "to be recorded and remembered" for its very day.

None of the other sources say anything about the escape of any of those on the mission to Otzmal (save the *ah-kin* Chi, who, according to Cogolludo, was blinded and spared by the Cocom to carry back the story); but as the essential letters in *u-putz'ahob-e* are quite clear, I have restored the word as given.

1542. This being a record of the Mani princes, their aid to the Spaniards in the matter of tribute-laying is here noted.

1545. This list of names is interesting, though different from those usually found; not all of those here named came together at this time.

I have left the word *pocob-tok* untranslated; the rendering "in the ruins" has been suggested, but on what grounds I can not see. The root *poc* means to wash, and is used of washing away one's sins; *tok* means to draw blood, also the flint-knife used for that purpose.

Recapitulating these chronological data on page 66 of the Chronicle of Oxkutzcab, changing the accompanying Christian years to conform to the *beginnings* of the corresponding Maya years instead of the *endings* as recorded, and finally correcting the month coefficients from 2, 7, 12, and 17 to 3, 8, 13, and 18, respectively, so as to conform to the Old Empire usage, we have:

Tun 2	Ahau 3	Mol	ended in the year	4	Cauac, which began in July 1532.
Tun 11	Ahau 18	Yaxkin	ended in the year	5	Kan, which began in July 1533.
Tun 7	Ahau 13	Yaxkin	ended in the year	6	Muluc, which began in July 1534.
Tun 3	Ahau 8	Yaxkin	ended in the year	7	Ix, which began in July 1535.
Tun 12	Ahau 3	Yaxkin	ended in the year	8	Cauac, which began in July 1536.
Tun 8	Ahau 18	Xul	ended in the year	9	Kan, which began in July 1537.
Tun 4	Ahau 13	Xul	ended in the year	10	Muluc, which began in July 1538.
Tun 13	Ahau 8	Xul	ended in the year	11	Ix, which began in July 1539.
Tun 9	Ahau 3	Xul	ended in the year	12	Cauac, which began in July 1540.
Tun 5	Ahau 18	Tzec	ended in the year	13	Kan, which began in July 1541.
Tun 1	Ahau 13	Tzec	ended in the year	1	Muluc, which began in July 1542.
Tun 10	Ahau 8	Tzec	ended in the year	2	Ix, which began in July 1543.
Tun 6	Ahau 3	Tzec	ended in the year	3	Cauac, which began in July 1544.

The next question is, which if any of these 13 tun-endings was a katun-ending as well. We have seen that the only katun which could possibly have ended between the years 1532 and 1544 according to any of our sources was a Katun 13 Ahau, and looking for a *tun* of this same name in the above table, we find that Tun 13 Ahau 8 Xul in the year 11 Ix ended in 1539; that is to say, under this assumption Katun 13 Ahau 8 Xul ended in 1539.

Turning next to Goodman's tables, it will be found that such a katun occurred in 11.16.0.0.0 13 Ahau 8 Xul, and further, that a Katun 13 Ahau 8 Xul could not recur either before or after that date until after a lapse of 18,707.70 years. Therefore, if these data and assumptions are correct, the Katun 13 Ahau for which the writer has suggested the Initial Series 12.9.0.0.0 13 Ahau 8 Kankin is not that at all, but is 11.16.0.0.0 13 Ahau 8 Xul instead, and further, it did not end in 1536 but in 1539. Under this correlation, therefore, the dates in the foregoing tables of equivalents would *all be 259 years later*. This point should be clearly borne in mind, for if the data given in V are correct, and represent a section of an *unbroken* sequence of the tuns straight back to the period of the Old Empire, then this correlation rests on firmer ground than that suggested in the foregoing pages. As will appear later, however, after the archæological evidence has been presented, this is almost certainly *not the case*, and the correlation indicated by V must be rejected on the grounds of archæologic and historic improbability.

The principal point at issue here is whether the Katun 13 Ahau in which Napot Xiu died was 13 Ahau 8 Kankin, as the writer believes, or 13 Ahau 8 Xul, as V apparently is to be interpreted as indicating, and it will now be shown that the historical evidence presented by the *u kahlay katunob* themselves precludes the latter possibility:

(1) If 11.16.0.0.0 13 Ahau 8 Xul be substituted for the Katun 13 Ahau of Napot Xiu's death in the *u kahlay katunob* on page 499, it will be found that the katun of the Chichen Itza lintel, namely, 10.3.0.0.0 1 Ahau 3 Yaxkin, will fall some 2 centuries *after* Chichen Itza is definitely stated to have been abandoned, and after the Itza had moved to Chakanputun, and a century *before* Chakanputun is stated to have been abandoned and the Itza had returned to Chichen Itza and established themselves there *a second time*. In short, this correlation would make the Chichen Itza lintel date from a Katun 1 Ahau, in which the city is definitely stated to have been *unoccupied*.

(2) If 11.16.0.0.0 13 Ahau 8 Xul be substituted for the Katun 13 Ahau of Napot Xiu's death, then Chichen Itza was discovered in 9.1.0.0.0 6 Ahau 13 Kayab, a date actually prior to the earliest date at Copan, and earlier than all the Old Empire dates save only the very earliest at Uaxactun and Tikal, clearly an impossible condition from the historic point of view, since it makes Chichen Itza the contemporary of Tikal, Copan, and the other Old Empire cities, instead of subsequent to them, as was actually the case.

(3) If 11.16.0.0.0 13 Ahau 8 Xul be substituted for the Katun 13 Ahau of Napot Xiu's death, then the opening entry of the *u kahlay katunob* on page 499 occurred in 8.7.0.0.0, at which time it may well be doubted whether the Maya had yet reached their historic habitat during the Old Empire, since the earliest date in that region, 8.14.10.13.15 on Stela 9 at Uaxactun, is a century and a half later.

But in addition to the several anachronisms which this correlation develops in the *u kahlay katunob*, there are others in the monuments equally if not more serious.

(4) The central capstone of the outer chamber of the East Range of the Monjas Quadrangle at Uxmal presents the following date (see figure 74): 5 Imix 19¹ Kankin falling in a Tun 18 of a Katun 13, the first two glyphs in the upper line recording the date, and the first two in the lower line the tun and katun in which it occurred. The only place where this

¹The original appears to have 18, which has been changed to 19 here in order to conform with the Old Empire chronology.

date could occur within a range of several hundred thousand years was at 11.12¹.17.11.1 5 Imix 19 Kankin, or 3.2.6.19 earlier than 11.16.0.0.0 13 Ahau 8 Xul, or, according to the Oxkutzcab correlation of the two chronologies, in 1478. But by this latter date Uxmal had already been abandoned for more than 30 years; hence this correlation flatly contradicts the evidence furnished by this lintel.

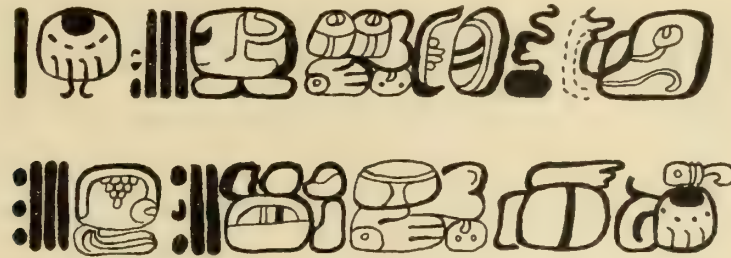


FIG. 74.—Inscription on capstone in outer chamber at northern end of East Range of Monjas Quadrangle at Uxmal.

(5) The ring on the east wall of the Ball Court at Uxmal presents the following date (see figure 75, *a*) 10² Ix 17³ Pop in Tun 17 ending on the day 12 Ahau. The Initial Series corresponding to this date is 11.15.16.12.14 10 Ix 17 Pop, or only 3.5.6 earlier than 11.16.0.0.0 13 Ahau 8 Xul, that is, 1536 in the Oxkutzcab correlation. But by this latter date Uxmal had already been abandoned nearly a century, and the Spaniards had already made their first unsuccessful attempt to subjugate the country; hence this correlation flatly contradicts the evidence furnished by the inscription on this ring.

(6) Finally, the south column in front of the sanctuary of the High Priest's Grave at Chichen Itza presents the following Period Ending date (see figure 76): 2 Ahau 18 Xul, End of Tun 11. The only Tun 11 in a period of 18,707.70 years which ended on this date was 11.19.11.0.0 2 Ahau 18 Xul or 3.11.0.0 *later* than 11.16.0.0.0 13 Ahau 8 Xul, *i. e.*, in 1609. But by this latter date Chichen Itza had already been abandoned for more than a century and a half, and in fact the whole country had been under the Spanish rule for 67 years. This is *reductio ad absurdum*, and compels the rejection of the Oxkutzcab correlation as the proper alinement of the Long Count with Christian Chronology.

EXPLANATION OF THE DIFFERENCE BETWEEN THE CORRELATION INDICATED BY THE CHRONICLE OF OXKUTZCAB AND THAT SUGGESTED HERE.

If, however, the foregoing historical and archæological evidence necessitates the rejection of this correlation, we are nevertheless still confronted with the equally indisputable fact that such a chronology was actually in use at the time of the Spanish Conquest, as clearly proved by page 66 of the Chronicle of Oxkutzcab. Here is a serious difference indeed between equally creditable evidence. The Chronicle of Oxkutzcab, as we have seen, is one of our most reliable sources, and the page in question was copied by the great-great-great-grandson of Napot Xiu, a century and a half after the latter's death, from an ancient book, presumably a family possession. Such a source as this can not be overlooked nor disregarded, particularly since the year-bearers which it gives agree exactly with those in almost all of the other sources. And yet we have just seen that even though this chronology seems to have been in use among the Xiu at the time of the conquest, as soon as we apply it to the *u kahlay katunob* and even to Xiu monuments such as the Uxmal lintel and ring, it immediately gives rise to impossible conditions. What,

¹The katun coefficient actually recorded is 13, which is correct, since 5 Imix 19 Kankin (11.12.17.11.1), falls in the katun ending on 11.13.0.0.0 and not in that ending on 11.12.0.0.0. Similarly the tun coefficient recorded is 18, not 17, since 5 Imix 19 Kankin (11.12.17.11.1), falls in the tun ending on 18.0.0 and not in that ending on 17.0.0.

²Although the day-sign coefficient is effaced, it will appear later that it could only have been 10.

³The original has 16, which has been changed to 17 to conform to the Old Empire usage.

then, is the explanation of this apparent paradox, a chronological system known to have been in use at the time of the Spanish Conquest which nevertheless can not be made to fit the *u kahlay katunob* and the monuments?

The writer believes the correct explanation of this apparently irreconcilable difference is that at the time of the Spanish Conquest *there were two systems in use in Yucatan*, one, which we may call the Itza, the direct descendant, as it were, of the Old Empire chronology, and the other, which we may call the Xiu, a mongrel system which had arisen not more than three centuries earlier at the outside, and possibly not more than a century, and was the result of grafting a system of *current* time-periods like the Nahua 365-day years on to a system of *elapsed* time-periods like the Maya katuns and tuns. This latter system, which could not have been introduced in Yucatan prior to 1200 A. D., is that used in the Chronicle of Oxkutzcab, and thus *does not afford an unbroken line back to the Old Empire, as does the first in which the sequence of the katuns had been preserved intact in the u kahlay katunob back to the beginnings of those records.*

Let us examine this evidence somewhat further. As has been pointed out frequently in the foregoing pages, the positions of the days in the months underwent a change some time during the New Empire, shifting forward one position. Thus, for example, in the Old Empire, Ahau always has a corresponding month-coefficient of 3, 8, 13, or 18, but at the close of the New Empire in the *u kahlay katunob* we find it used with a month coefficient of 2, 7, 12, or 17, one day earlier. Again, in the Old Empire, Imix always has a month coefficient of 4, 9, 14, or 19, but in the *u kahlay katunob* it appears with 3, 8, 13, or 18, one day earlier; and so on throughout the 20 day-signs.

It is our first task, then, to find out *when* this shift occurred. Throughout all known Old Empire texts, and in most New Empire ones as well, as will appear shortly, the month coefficients of Ahau are always 3, 8, 13, or 18; hence this shift did not take place until *after the Maya had reached Yucatan.*

During the field season of 1918 the writer collected a dozen or more texts bearing upon this point from New Empire sites; 14 are enumerated below, and in all save 2 the month coefficients follow the Old Empire positions:

No.	Site.	Monument.	Day-sign.	Month-position.	System.
1	Uxmal.....	Ball Court.....	Ix.....	17 Pop.....	Old.
2	Uxmal.....	Ball Court.....	Ix.....	16 Pop.....	New.
3	Uxmal.....	Monjas Quadrangle East Range..	Imix.....	18 Kankin.....	New.
4	Uxmal.....	Monjas Quadrangle North Range	Eb.....	5 Ceh.....	Old.
5	Silan.....	Stela 1.....	Muluc.....	2 Kayab.....	Old.
6	Holactun....	Temple of Initial Series.....	Ix.....	2 ?	Old.
7	Holactun....	Temple of Initial Series.....	Cib or Caban.	4 ?	Doubtful.
8	Chichen Itza.	Temple of Initial Series.....	Muluc.....	7 Zac.....	Old.
9	Chichen Itza.	Lintel at <i>casa principal</i>	Kan.....	12 Cumhu.....	Old.
10	Chichen Itza.	High Priest's Grave.....	Ahau.....	18 Xul.....	Old.
11	Chichen Itza.	Temple of Two Lintels.....	Eznab.....	11 Yax.....	Old.
12	Chichen Itza.	Temple at Ula.....	Imix.....	4 Zac.....	Old.
13	Chichen Itza.	Temple at Ula.....	Eb.....	10 Pop.....	Old.
14	Tulum.....	Stela 1.....	Ahau.....	13 Pax.....	Old.

Further exploration and excavation would doubtless bring others to light, but on the basis of the evidence now available, we see that only two of the above fourteen texts, Nos. 2 and 3, both from Uxmal, surely follow the New Empire usage, one (No. 7) being doubtful. In this last case the day-sign may be either Cib or Caban, and, if it is the former, the corresponding month-coefficient, which is 4, agrees with the Old Empire usage; if it is the latter, the New Empire usage is indicated. However, as Ix occurs in this same text with a corresponding month-coefficient of 2 (No. 6), the Old Empire usage probably obtained here.

The foregoing examples, even omitting the two aberrant ones, Nos. 2 and 3, include all five groups of month-coefficients, Eb representing the 0, 5, 10, or 15 group; Eznab the 1, 6, 11, or 16 group; Kan, Muluc, and Ix the 2, 7, 12, and 17 group; Ahau the 3, 8, 13, and 18 group; and Imix and possibly Cib the 4, 9, 14, and 19 group.

The two examples following the New Empire usage, Nos. 2 and 3, have been mentioned before (see figure 75, *a*, and figure 74 respectively). Both, it should be noted, are from Uxmal, the great western Maya metropolis at the close of the New Empire, and both are of late date, 11.15.16.12.14 (1277 A. D.) and 11.12.17.11.1 (1219 A. D.), that is, after the fall of Chichen Itza and the end of the League of Mayapan.

While most of the other twelve are certainly earlier (Nos. 6, 7, 8, 11, and 14 certainly so, and Nos. 5, 9, 12, and 13 probably so), at least one, No. 10 at Chichen Itza, the great eastern Maya metropolis of the New Empire, is surely *later*, having the date, 11.19.11.0.0 (1350 A. D.).

Before analyzing these data on the monuments, let us examine the three pre-Columbian Maya manuscripts now known, the Codices Dresdensis, Tro-Cortesianus, and Peresianus.

In the Codex Dresdensis the month-signs, which are scattered throughout the manuscript, being particularly frequent on pages 24 and 46 to 50, which deal with the Venus-Solar period of 2,920 days, *all conform to the Old Empire usage*.

In the Codex Tro-Cortesianus only one month-sign, Cumhu, has been identified in the Calendar Round date 13 Ahau 13 Cumhu on page 73, *b*, but this is sufficient to fix the system there used as the same as that in the Old Empire.

Unfortunately, in the Codex Peresianus, the only three month-signs there identifiable, 16 Zac on page 4, 1 Yaxkin on page 7, and 12 Cumhu on page 18, are not associated with days, although it is not improbable that the first may be preceded by an unspecified day Akbal;¹ if so, this codex also conforms to the Old Empire usage.

A review of the foregoing archæological evidence, the monuments, and the codices establishes the following points:

- (1) That all the archæological evidence, save that presented on two texts alone, indicates that the positions of the days in the months remained unchanged throughout the course of Maya history, in the New Empire as well as in the Old.
- (2) That the two texts which do not agree with the above are both from the same site, Uxmal, and both postdate the fall of Chichen Itza and the first introduction of Nahua influence into Yucatan.
- (3) That in the east, at least at Chichen Itza, this shift had not taken place down to 1350 A. D. although it is found at Uxmal more than a century earlier.

Turning next to the post-conquest sources, the Books of Chilán Balam, it is evident that by the time they were written this shift of one day forward had been made everywhere, Ahau always having a month-coefficient of 2, 7, 12, or 17 and Imix of 3, 8, 13, or 18, etc.

The Books of Chilán Balam are so full of examples of this kind that it is only necessary to cite a few cases here. See the entries describing Event C in III, IV, and IX; six of the thirteen tun-endings in V, the Calendar Round date 11 Chuen 18 Zac on pages 115 and 8 of the Books of Chilán Balam of Mani and Tizimin respectively; the Calendar Round date 5 Ahau 17 Tzec on pages 101 and 1 of the Books of Chilán Balam of Mani and Tizimin respectively, and others too numerous to require further citation.

¹This day-sign has no coefficient, but it is exactly like the column of the 13 days Akbal on page 20 of the same codex, and it must be regarded as Akbal if the others are.

Taking into consideration all the evidence, archæological as well as historical, the following general conclusion appears justifiable:

The shift in the positions of the days in the months did not take place until the close of the New Empire. Even in the west, at Uxmal, where it first appears, no trace of it is found before the fall of Chichen Itza in Katun 8 Ahau (1182-1201 A. D.), when the Nahua influence seems to have been introduced into Yucatan for the first time. In the east at Chichen Itza, Tulum, Silan, etc., it does not appear at all. After the conquest, however, in the Books of Chilán Balam it entirely replaced the Old Empire system, and the latter seems to have been forgotten.

But the writer believes the date of this change may be determined even more exactly, at Uxmal at least, than as having occurred some time after 1182-1201.

The fall of Chichen Itza took place between 1182 and 1201 A. D., that is, some time during that Katun 8 Ahau (see page 499). Now, the lintel in the outer chamber of the East Range of the Monjas Quadrangle at Uxmal we have already seen dates from 11.12.17.11.15 Imix 18 Kankin, *i. e.*, 1219 A. D., the month-coefficient conforming to the New Empire system. Therefore, some time between 1182, the beginning of Katun 8 Ahau, and 1219, when this lintel was dated, the shift in the month-coefficients was introduced at Uxmal; indeed, 58 years later, when the Ball Court was erected there, occasion was taken to record the date of its dedication *in both systems*.

Let us examine this construction next, the inscriptions on the rings of which are given in figure 75, *a* and *b*. The Ball Court was a purely Nahuán institution, and on archæological grounds alone, buildings of this type can hardly have been erected in Yucatan before 1200. In fact, only two ball courts are known in the whole Maya area, the large one at Chichen Itza and the small one here at Uxmal.

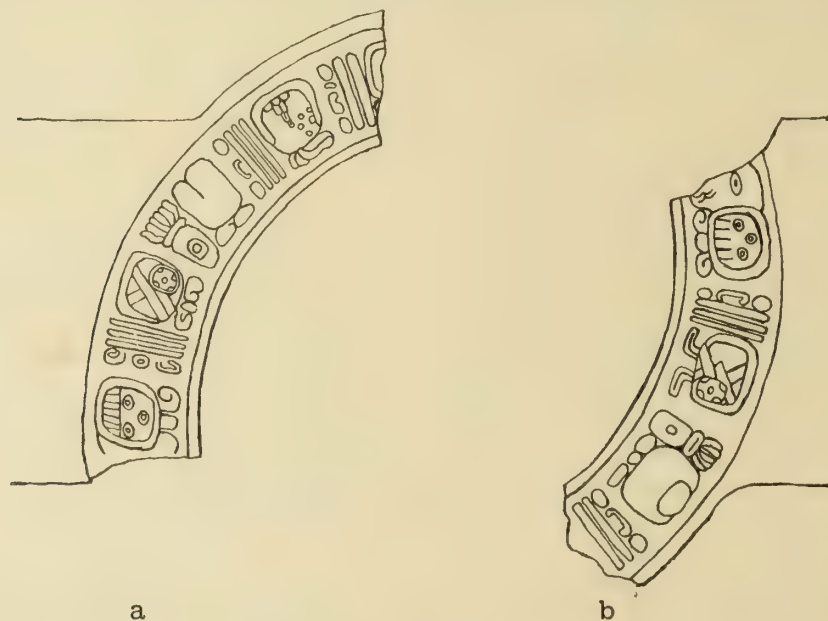


FIG. 75.—Parts of inscription on rings of Ball Court at Uxmal: *a*, northern side of eastern ring; *b*, northern side of western ring.

The inscriptions on the rings of the latter appear to record *the same date* in terms of both the Old and New Empire systems. That on the north side of the east ring (figure 75, *a*) begins with a day Ix (the coefficient, a head-variant, is unfortunately destroyed). This is followed by the month 16 Pop, the month-coefficient (*i. e.*, 16) on this ring thus conforming to the New Empire usage *after the*

shift had taken place. Next comes an ending-sign, and next Tun 17 ending on the day 12 Ahau. Assuming that this shift of one in the month-coefficient, *i. e.*, from 17 to 16, made no corresponding difference in the position of this date in the Long Count, it can be shown that there are only two Tuns 17 ending on the day 12 Ahau which contained *any day Ix*, which fell on 17 Pop. These are:

- 11.15.17.0.0 12 Ahau 3 Yaxkin, in which tun fell 11.15.16.12.14 10 Ix 17 Pop.
12. 8.17.0.0 12 Ahau 3 Muan, in which tun fell 12. 8.16. 4.14 6 Ix 17 Pop.

Of these, only the first is possible here, since the second in the writer's correlation represents either the close of 1533 or early in 1534, and in that indicated by V. 1793. Therefore the missing coefficient of Ix may be restored as 10.

The inscription on the north side of the west ring (see figure 75, *b*) begins with a day Ix, the coefficient of which is a head-variant numeral, probably 10 (note the remains of the fleshless lower jaw). Next follows clearly and unmistakably 17 Pop, next the same ending-sign as on the opposite ring, and next the 2 dots and first 2 bars of the coefficient of Tun 17, and then comes the break.¹ Although the rest of this text is missing, its identity, so far as it goes, with that on the other ring is so evident that the date recorded here is almost surely the same as that on the other ring, with this one important difference: on the west ring the month-coefficient of Ix is given as 17, conforming to the Old Empire usage, whereas on the east ring it is given as 16, conforming to the New Empire usage *after* the shift had taken place.

This double entry of what appears to be exactly the same date, the writer believes, is best to be interpreted as a sort of Maya Rosetta stone, a double record of the same date in terms of both the Old and New Empire systems; and furthermore, since these two dates, save for their month-coefficients, are otherwise identical, it is to be assumed that this change was accomplished without the loss of a single day of the tonalamatl (*i. e.*, the 260-day period), and that consequently the naming of the katuns in the *u kahlay katunob* underwent no corresponding change, *an extremely important point*.

If this interpretation is correct, it answers the question as to *when* this shift in the month-coefficients took place, but it gives no hint as to the causes which may have brought it about; and to answer this latter question it is first necessary to review the subject of the Maya year-bearers.

Although the positions of the days in the months underwent a shift of but a single day, as we have seen, the Maya year-bearers appear to have *shifted twice* during the 15 centuries of Maya history, first 1 day forward from the Ik, Manik, Eb, and Caban group to the Akbal, Lamat, Ben, and Eznab group, and second 1 day forward from the latter group to the Kan, Muluc, Ix, and Cauac group, which was that in use at the time of the Spanish Conquest.

As to the use of the first group, although we have no direct evidence that Ik, Manik, Eb, and Caban were used as year-bearers during the Old Empire, there is ample evidence that the haab during this period could only have begun with one of these four day-signs.

In the most ancient Maya inscription known, the Tuxtla Statuette, what may have been the beginning of the 365-day year in those remote times may be recorded in the date 8.6.2.4.17 8 Caban 0 Kankin. In any case this indicates that in the oldest text known, the months, and hence also the years, began with one or other of the days of this group.

Again, it has already been suggested (page 101, note 1) that the three dates: 13 Manik 0 Yaxkin on a pier in the western court of the Palace Group at Palenque,

¹It is possible that the Tun 17 may be omitted here, and that this may be the 12 of 12 Ahau, the day on which this Tun 17 ended, although this hardly appears probable in view of the similarity of the preceding glyphs.

1 Eb o Yaxkin on Lintel 9 at Yaxchilan, and 8.14.3.1.12 1 Eb o Yaxkin on the Leyden Plate (see figure 17, *a*, *b*, and *c*, respectively) all may have been Maya New Year's days at one time. There is some linguistic basis for this belief, since Xul, the month immediately preceding Yaxkin, means end or close in Maya, while Yaxkin itself means new sun or fresh sun, perhaps indicating the winter solstice, and shortly before the birth of Christ the beginning of Yaxkin coincided with the winter solstice on the basis of July 16, 1553, being equal to the first day of Pop. The three dates in figure 17 under this hypothesis were therefore New Year's days.

Coming down to the Great Period of the Old Empire, there are indications that by this time the beginning of the Maya haab had become fixed as o Pop. On Altar U at Copan we have already seen that two consecutive New Year's days were recorded, 9.15.8.10.12 2 Eb o Pop, and 9.15.9.10.17 3 Caban o Pop (see pp. 306, 307); and at Tikal there is the New Year's Day 9.15.12.11.12¹ 6 Eb o Pop.

Finally, Caban and Ik are the only two day-signs known which are ever used as the variable element in the Initial Series introducing glyph, the former appearing in that sign in the Initial Series on the tablet of the Temple of the Foliated Cross at Palenque and the latter in the same position in the same sign on the tablet of the Temple of the Cross, also at Palenque. And in this connection it will be remembered that at Copan and Quirigua these same two day-signs, and especially the former, have an importance second only to that of Ahau. Witness the frequency of the date 9.16.12.5.17 6 Caban 10 Mol at Copan and of 9.14.13.4.17 12 Caban 5 Kayab at Quirigua. Indeed, so far as the inscriptions are concerned, there can be no doubt but that the days of this group enjoyed a greater importance than all other Maya days except Ahau; and further, that the months, and hence the haab or 365-day periods, *always began* either with a day Caban, Ik, Manik, and Eb, the first probably being the most important of the four.²

Since the years could only begin with one of these four day-signs in the Old Empire, it would appear safe to conclude that *if the custom of having year-bearers prevailed in the Old Empire at all*, the year-bearers must have been Ik, Manik, Eb, and Caban. This is only indirect evidence, it is true, but in default of direct evidence bearing thereon, it may probably be accepted as indicating that these four day-signs were the dominicals or year-bearers in use during the Old Empire.

At some later time, probably during the New Empire, a shift of one day forward took place, the Akbal, Lamat, Ben, and Eznab group replacing the Ik, Manik, Eb, and Caban group in the opening position of the year. The evidence for this change is presented on pages 25 to 28 of the Codex Dresdensis and on pages 19 and 20 of the Codex Peresianus, both of which probably emanate from Yucatan, and probably date from before the fall of Chichen Itza in Katun 8 Ahau, 1182-1201 A. D.

Nearly 40 years ago Thomas pointed out³ that these pages of the Dresden manuscript refer to the ceremonies which took place at the beginnings of the 365-day years or haab, which are elaborately described by Landa;⁴ and since there were four different day-names with which the year could begin, each one of these pages is devoted to the ceremonies proper to one of these four kinds of years. These four pages are identical in arrangement. On the left side of each is a column of 26 day-signs, all without coefficients. On page 25, the first 13 are Eb, the last 13 are Ben; on page 26, the first 13 are Caban, the last 13 Eznab; on page 27, the first 13 are

¹Bowditch (1910, p. 206) gives the Initial Series number of this date as 10.0.18.1.12 6 Eb o Pop, but on insufficient evidence, the writer believes. As a matter of fact, the text on which this Calendar Round date 6 Eb o Pop occurs begins with another Calendar Round date, 3 Ahau 3 Mol, which can hardly be other than the lahuntun-ending 9.15.10.0.0 3 Ahau 3 Mol, which is less than 3 years earlier than the Initial Series chosen by the writer for 6 Eb o Pop.

²Goodman (1897), in the preface to his *Archaic Annual Calendar*, also states that although he begins the latter with the day Ik, there are strong grounds for believing that the series really began with Caban.

³Thomas, 1882, pp. 67, *et seq.*

⁴Landa, 1881, pp. 81-90.

Ik, the last 13 Akbal; and on page 28, the first 13 are Manik, the last 13 are Lamat. It will be perceived that these are the ending-days and beginning-days of a series of 52 years (*i. e.*, 4×13) which began on the days Ben, Eznab, Akbal, and Lamat and ended on the days Eb, Caban, Ik, and Manik respectively. The beginning-days and the ending-days of each group are repeated 13 times in order that the four groups may make a total of 52 or all the year-bearers possible.

The arrangement of the rest of these pages confirms Thomas's identification here. In the upper third to the right of the column of day-signs are four tiger-headed deities, practically the same throughout. The middle thirds are filled either with the deities who have presided over the *preceding* years or those who are to preside over the *current* years, and the bottom thirds with the deities of the *current* years or those of the preceding years, depending upon which those in the middle thirds are, which agrees with these ceremonies as described by Landa.

It is evident from the foregoing that we have on these four pages of the Codex Dresdensis a record of the ceremonies which were appropriate to the beginnings of the four kinds of Maya years, and further, that some time *later* than the Old Empire, but *before* this manuscript was composed, the year-bearers had shifted forward one day, *i. e.*, from the Old Empire group of Caban, Ik, Manik, and Eb to the Eznab, Akbal, Lamat, and Ben group.

The Codex Peresianus shows the same condition. On pages 19 and 20 of that manuscript a series of 52 year-bearers is recorded, beginning with 1 Lamat¹ and ending with 13 Akbal, the order of reading being in lines from left to right across the two pages as though they were but one, and from top to bottom, the series being continuous, the first year-bearer on page 19, 1 Lamat, following immediately after the last on page 20, 13 Akbal. The arrangement of the year-bearers is again such that all the Lamat years fall in the first column, all the Ben years in the second column, all the Eznab years in the third column, and all the Akbal years in the last column, the ceremonies appropriate to each being depicted in wider columns immediately following the corresponding column of year-bearers in each case; and the conclusion is again unescapable that, like the Dresden Manuscript, the years in the Codex Peresianus also began with the Eznab, Akbal, Lamat, and Ben group.

When we come to the remaining Maya codex, the Tro-Cortesianus, however, we find another shift in the year-bearers had taken place before it was composed. On pages 34 to 37 of this manuscript there is a series of 52 year-bearers beginning with 10 Cauac and ending with 9 Ix. These follow exactly the same arrangement as in the Codex Peresianus, the order of reading being from left to right across all four pages as one, and from top to bottom, all the Cauac years falling on the first page, all the Kan years on the second, all the Muluc years on the third,² and all the Ix years on the last. Again the ceremonies appropriate to each year appear to the right of the corresponding column of year-bearers, one group to each page.

The most fundamental difference between these pages of the Codex Tro-Cortesianus and the corresponding pages of the Dresdensis and Peresianus is that in the former the year-bearers are Cauac, Kan, Muluc, and Ix, whereas in the two latter, we have seen, they are Eznab, Akbal, Lamat, and Ben; that is, they have again been shifted one day forward, making two shifts since the time of the Old Empire.

¹The upper line of year-bearers running across both pages is effaced. It may be restored, however, as having been composed of 1 Lamat, 2 Ben, 3 Eznab, and 4 Akbal.

²The Muluc years are somewhat confused, reading 12, 3, 6, 10, 1, 5, 9, 13, 4, 8, 2, 7, and 3 instead of 12, 3, 7, 11, 2, 6, 10, 1, 5, 9, 13, 4, and 8. As Thomas has pointed out (1882, p. 19), this was probably due only to an error of the scribe rather than to any intentional departure from the regular order.

This last group, moreover, is the one which was in use at the time of the Spanish Conquest, a fact unanimously agreed upon by all the authorities, Spanish as well as native.¹

The Maya year-bearers therefore appear to have passed through three of the five possible groups of day-signs during the course of recorded Maya history:

- (1) The Old Empire year-bearers were Caban, Ik, Manik, and Eb.
- (2) The New Empire year-bearers (period of the Codices Dresdensis and Peresianus) were Eznab, Akbal, Lamat, and Ben.
- (3) The New Empire year-bearers (period of the Codex Tro-Cortesianus) were Cauac, Kan, Muluc, and Ix.

Before we can correlate this evidence with that presented by the shift in the positions of the days in the months, and suggest a possible explanation for these several changes in the Maya chronological system, it is first necessary to touch briefly upon a third line of evidence.

No matter how seriously the archæological and historical (*u kahlay katunob*) evidence contradicts the correlation of the Long Count and Christian chronology indicated on page 66 of the Chronicle of Oxkutzcab, the fact remains that such a correlation was actually in use at the time of the conquest. Indeed, our only escape from this dilemma appears to be to recognize that some sort of a break took place in the sequence of the ending-days of the katuns some time between the end of the Old Empire and the Spanish Conquest. Practically stated, the archæological and historical evidence tends to show that Katun 13 Ahau 8 Kankin ended in 1536, whereas page 66 of the Chronicle of Oxkutzcab indicates that Katun 13 Ahau 8 Xul ended in 1539.

While these two dates are only 1,300 days apart in the Calendar Round, as katun-endings they are 13 katuns apart or 256.27 years, which, added to the difference of 3 years in the Christian calendar, makes a total difference of 259 years between these two correlations, as already stated.

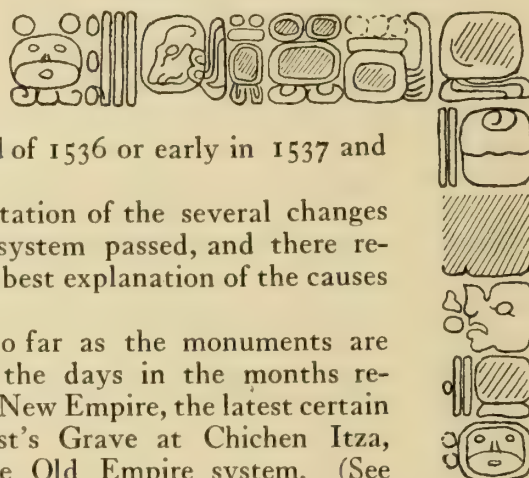
We have here, then, a double disagreement, not only as to the particular Katun 13 Ahau, one correlation giving it as 13 Ahau 8 Kankin, and the other as 13 Ahau 8 Xul, 13 katuns later, but also a difference of 3 Christian years in the time when this Katun 13 Ahau ended, one placing it at the end of 1536 or early in 1537 and the other toward the close of 1539.

The foregoing concludes the presentation of the several changes through which the Maya chronological system passed, and there remains to suggest what appears to be the best explanation of the causes giving rise to these phenomena.

It is evident at the outset that in so far as the monuments are concerned, the Old Empire positions of the days in the months remained intact almost to the end of the New Empire, the latest certain date, the Temple of the High Priest's Grave at Chichen Itza,

1.19.11.0.0 (1350), conforming to the Old Empire system. (See figure 76.) In fact, as already noted, the only two inscriptions in stone which reflect this change at all are those on the east ring of the Ball Court and on

FIG. 76.—Inscription on front of column in Temple of the High Priest's Grave at Chichen Itza.



¹All of the Books of Chilan Balam, Nakuk Pech, the Chronicle of Oxkutzcab, Landa (1881, pp. 87-90), Cogolludo (1688, p. 186), and Pérez (Stephens, 1843, vol. 1, pp. 434-459), in fact, all the post-Columbian authorities, agree that the only year-bearers in use in Yucatan at the time of the conquest were Kan, Muluc, Ix, and Cauac, no others even being mentioned.

a capstone in the East Range of the Monjas Quadrangle, both at Uxmal, and both somewhat earlier, 11.15.16.12.14 (1277) and 11.12.17.11.1 (1219) respectively.

Unfortunately, we are in doubt as to the dates of the Codices Dresdensis and Peresianus, so we can not determine when the year-bearers first changed from the Old Empire group to the middle group. Both of these codices, judged by their stylistic characteristics, were probably found in Yucatan, it should be remembered, and particularly the former may have been a *later* New Empire copy of an Old Empire original.¹ Förstemann believes the contemporaneous date of the Dresden manuscript was 9.7.16.12.0 1 Ahau 18 Zip,² and Bowditch has suggested that it was 9.9.9.16.0 1 Ahau 18 Kayab.³ The writer feels that these dates are much too early; and finally, there is an entry in the *u kahlay katunob* which may indicate that this change in the year-bearers took place in Yucatan in 9.17.0.0.0, and consequently that the Dresden Codex is later than this date.

In both the Tizimin and first Chumayel chronicles occurs the following entry opposite the first Katun 13 Ahau after Chichen Itza is said to have been occupied: "Pop was then counted in order." Under the correlation suggested here this was 9.17.0.0.0 13 Ahau 18 Cumhu; and under that indicated by the Oxkutzcab chronicle it was 9.4.0.0.0 13 Ahau 18 Yax, the latter being much too early for the date of this change. 9.17.0.0.0, on the other hand, agrees very closely with the date of the foundation of Chichen Itza, and it is quite possible that the move thither caused some slight derangement in the calendar, so that subsequently the year-bearers were named Ezab, Akbal, Lamat, and Ben, and that this change is indicated in the *u kahlay katunob* by the statement that "Pop was then counted in order."

That this change of the year-bearers did not affect the positions of the days in the months, however, we have already seen; nor did the next change from the middle group of year-bearers to the last group affect any change in the month-positions either, judging from the single Calendar Round date, 13 Ahau 13 Cumhu, on page 73, *b* of the Codex Tro-Cortesianus. Fortunately, we are able to date this manuscript on stylistic grounds more closely. It is clearly very crude as compared with the Peresianus and Dresdensis and obviously later.

In 1916, during the course of a visit to the ruins of Tulum on the east coast of the peninsula, Gann made tracings of some mural decorations there, figures of deities, etc. He pronounces these so like the figures in the Codex Tro-Cortesianus that he concludes this manuscript, if not made at Tulum itself, comes from that immediate neighborhood.

The style of architecture at Tulum is also crude and late; and finally it seems to have been the only site on the east coast of Yucatan of sufficient size to answer to the glowing description of the large occupied city with a high tower made by Padre Juan Diaz, the chaplain and chronicler of the Grijalva expedition in 1518.⁴

¹Morley, 1915, p. 273.

²Förstemann, 1904, p. 437.

³Bowditch, 1909, p. 279.

⁴"That day we left the island, called the Holy Cross [Cozumel], and went to that of Yucatan, which is at a distance of 15 miles. When we were near the coast we saw three large villages at a distance of about 2 miles apart. They contained a great number of stone houses, some very high towers, and many dwellings covered with straw. We would have entered the village if the commander had permitted it, but he opposed it. We ran along the coast day and night, and the next day toward sunset we perceived a town or village so large that Seville would not have appeared more considerable or better: one saw a very large tower, there was a crowd of Indians on the shore, who carried two standards, which they raised and lowered to make a sign to us to come to them; the commander did not wish it. The same day we arrived at a beach near which was a tower, the highest we had seen; one saw here quite a large town or village; the country was watered by many rivers; we discovered a bay where a whole fleet could have entered [Ascención Bay]. It was surrounded by wooden dwellings made by the fishermen; the commander was going to disembark there. It was utterly impossible for us to follow the coast, and to advance farther; we raised sail and returned whither we had entered." (Ternaux-Compans, 1838, pp. 10-12). For other descriptions of Tulum, see Stephens, 1843, vol. II, pp. 385-409; Howe, 1911, pp. 539-550; Morley, 1916a, pp. 338, 339; *ibid.*, 1917, pp. 190-204; *ibid.*, 1918a, pp. 274, 275.

The other ruins along the east coast of Yucatan which the writer has visited, Espiritu Santo Bay, Chac Mool, Playa Carmen, Cancuen, El Mecco, and Isla de Mujeres, are all of similar type, small, practically devoid of sculptured decoration, and of cruder workmanship than the cities of the interior. Indeed, it appears probable that they are of comparatively recent origin, certainly after the fall of Chichen Itza in Katun 8 Ahau (1182-1201), and possibly after the fall of Mayapan in Katun 8 Ahau (1438-1458). And since the Codex Tro-Cortesianus surely emanates from this general region, it too must date from after 1182-1201. Finally, if we may trust the evidence supplied by the single Calendar Round date in this manuscript, 13 Ahau 13 Cumhu, even this second shift of the year-bearers did not affect the positions of the days in the months, at least in the eastern cities.

That the Kan, Muluc, Ix, and Cauac year-bearers were introduced *after* the fall of Chichen Itza some time in Katun 8 Ahau, 1182-1201, is indicated by a painted lintel at Chichen Itza, which is shown in figure 77.¹ This was excavated by Thompson from a small chamber in a group of buildings some distance east of the *casa principal* on the south side of the road leading to the Grotto. The upper band of the inscription is composed of 7 glyphs, of which only the third and fourth concern us here. The former is very clearly 6 Kan, the latter equally clearly Tun 9.



FIG. 77.—Part of inscription on capstone from a small chamber in a structure east of the *casa principal* at Chichen Itza.

The meaning here seems to be that a haab or 365-day year, whose year-bearer was the day 6 Kan, fell in some Tun 9. If we admit the truth of this assumption, we may fill in the missing month part of the beginning-day of this year as 2 Pop on the ground that in the east, *i. e.*, at Chichen Itza, Tulum, etc., we have no ground for believing that the position of the days in the months ever changed from the Old Empire system.

This Calendar Round date did not occur at all in any Tun 9 of either Cycle 9 or Cycle 12 and in only one Tun 9 of Cycles 10 and 11 each, as follows:

10. 3.8.14.4 6 Kan 2 Pop.

11. 12.8.13.4 6 Kan 2 Pop.

Of these, only the latter is historically possible here, since the Kan, Muluc, Ix, and Cauac group of year-bearers had not come into use as early as 10.3.8.14.4. Indeed, so far as the writer is aware, this is the earliest example of the use of this group of year-bearers known (1210 A. D.).

This lintel also tends to disprove the correlation indicated by the Oxkutzcab chronicle, since if 11.16.0.0.0 is 1539, then 11.12.8.13.4 will be 1469, some 20 to 30 years after Chichen Itza had been abandoned and the Itza had left Yucatan; or using the earlier value, if 10.3.8.14.4 be accepted for 6 Kan 2 Pop, under the Oxkutzcab correlation it will give 897 A. D. for this lintel, far too early for a Kan year-bearer to have been used.

Correlating all the foregoing evidence as to the year-bearers, it appears probable that shortly after Chichen Itza was founded, in 9.17.0.0.0—if the setting of Pop in

¹The inscription on this lintel was drawn by Mr. John Held, jr., in 1918.

order may be taken as a reference to this change—the year-bearers were shifted in Yucatan from Caban, Ik, Manik, and Eb, one day forward to Eznab, Akbal, Lamat, and Ben respectively, *without, however*, the positions of the days in the months suffering any corresponding change (Codices Dresdensis and Peresianus).

More than six centuries later, and as the writer believes he will be able to show, as a result of the fall of Chichen Itza and the introduction of Nahua chronological practices in Yucatan *after* 1182–1201, the year-bearers were again shifted one day forward to Kan, Muluc, Ix, and Cauac, but not later than 1210, the latter date being fixed by the Chichen Itza lintel just described. Again, this shift was accomplished without any corresponding change in the positions of the days in the months in the eastern cities (High Priest's Grave at Chichen Itza and the Codex Tro-Cortesianus from Tulum), but by a change of one day in the western cities as early as 1219 (lintel from the East Range of the Monjas Quadrangle at Uxmal), also corroborated by the Uxmal Ball Court as having taken place as early as 1277.

This shift of 1 in the month-positions, and the *second shift* of 1 in the year-bearers, the writer believes, was caused by the introduction of the Nahua influence into Yucatan after 1182–1201, and more particularly by the attempt to accommodate a chronology kept in terms of elapsed units like the katun and tun to a chronology kept in terms of current time-periods like the 365-day Nahua years.

Here was a fundamental difference in the whole conception of time, and in their attempts to readjust themselves to it the Maya shifted both their year-bearers and the positions of their days in the months, the former forward, the latter backward.

It has long been known that the Nahua year-bearers, Tochtlī, Acatl, Tecpatl, and Calli, corresponded to the Maya year-bearers Lamat, Ben, Eznab, and Akbal respectively, *i. e.*, those of the middle group, which, according to the writer's hypothesis, were already in use in Yucatan when the Nahua influence first made itself felt there.

The question may well be asked, why then, if the two groups of year-bearers were the same, should any change have been made in the Lamat, Ben, Eznab, and Akbal group at all?

With some hesitation the writer offers the following tentative explanation of what may have happened. At the close of the twelfth century the Maya appear to have been confronted with the following situation: a strong alien people, the Nahua, in alliance with one of the native Maya princes, the *halach vinic* of Mayapan, had just achieved a notable victory over the Itza, the oldest branch of the Maya in Yucatan. As a result of this victory, in which seven Nahua leaders aided the *halach vinic* of Mayapan,¹ the Itza capital, Chichen Itza, appears to have been given over to the latter's foreign allies as their share in the spoils of war; certain it is that Chichen Itza, more than every other Maya city, shows Nahua influence in its sculpture, art, and architecture.

When the Nahua came to Yucatan in the twelfth century the Maya were already naming their year-bearers after the *second days* of their years, *i. e.*, Lamat, Ben, Eznab, and Akbal, although the corresponding month-coefficients of these days were still 1. The Nahua, on the other hand, while naming their year-bearers after these *same four days*, or rather their Nahuatl equivalents, really called them the *first days* of their years, a difference of 1 in their positions in the year as compared with the current Maya usage.

The Maya, either voluntarily or under compulsion, it matters little which, may have sought to overcome this difference in position by making their days Lamat, Ben, Eznab, and Akbal conform to the Nahua positions for their corre-

¹Brinton, (1882, p. 102) gives their names as Ah Zinteyut Chan, Tzuntum, Taxcal, Pantemit, Xuchueut, Ytzcuat, and Kakaltecat. See also *ibid.*, p. 147.

sponding days, Tochtli, Acatl, Tecpatl, and Calli; but true to their Maya traditions and to their conception of time as a thing of elapsed units, *they gave these first days of the year the month-coefficient 0, as they had always done from time immemorial.* This would explain the difference of one day in the positions of the days in the months between the Old Empire and the late New Empire, *i. e.*, the Toltec Period (see page 505), but it does not explain why the second shift in the year-bearers took place, since the Lamat, Ben, Eznab, and Akbal group already agreed with the year-bearers of the conquerors.

This second change may have come about shortly after the month-positions were changed, and may have been due to the inability of the Maya to maintain intact their conception of time as a succession of elapsed units, in the face of a strong element in their midst which looked upon time as a matter of current units. And once the month-positions had been changed to make the year-bearers, 1 Akbal 0 Pop, 1 Ben 0 Pop, 1 Eznab 0 Pop, and 1 Lamat 0 Pop, really occupy the *first* and not the *second* positions in the year, as under the Old Empire system, the Maya may not have been able to hold out against calling the first position of their years 1 Pop, as did the Nahua, instead of 0 Pop, as they had always done before.

At this point, then, they may have given up calling the first position of the year 0 Pop, using 1 Pop instead, after the Nahua usage, *but rather than shift Akbal back to 1 again, where it had been under the Old Empire, they chose the Kan, Muluc, Ix, and Cauac group, since under the shift of 1 forward in the month positions already made these now had a month coefficient of 1 instead of 2 as in the Old Empire,* thus doing away with 1 Akbal 0 Pop as a year-bearer and substituting in its stead 1 Kan 1 Pop, the condition actually prevalent at the time of the Spanish Conquest.

The writer is well aware that this explanation is open to justifiable adverse criticism. Not only is it based upon insufficient evidence, but it also presupposes a change in the Maya year-bearers at a time when they were already the same as the corresponding Nahua year-bearers. On the other hand, it best explains the archæological data actually observed, and at the same time it ascribes these final changes to what the writer believes is at the root of this whole question, namely, the inevitable confusion which arose when a system of current time-units was grafted onto a system of elapsed time-units. This was a fundamental change indeed, and before the Maya had become adjusted to it, the positions of their days had shifted 1 backward, they had lost their conception of the zero position as being that of the first day of the year, the year-bearers themselves had undergone a second shift forward; and finally, the Xiu at least, appear to have dropped 205 positions in the year. This last took place some time after 11.15.16.12.14, when the sequence of the katuns as they had come down from the Old Empire was still intact at Uxmal as established by the date on the capstone in the East Range of the Monjas Quadrangle, but before that "ancient book" from which Don Juan Xiu copied page 66 of the Oxlutzcab Chronicle in 1685 was written.

All these changes must have brought about a corresponding feeling of uncertainty as to just what the positions of the days in the months really should be. For example, on page 66 of the Chronicle of Oxlutzcab just cited, in a series of 13 consecutive tuns, Don Juan Xiu refers Ahau to the 3, 8, 13, and 18 group of month-positions once (Old Empire system), to the 2, 7, 12, and 17 group five times (New Empire system), and to the 1, 6, 11, and 16 group seven times, the last conforming to no system known anywhere else. On the other hand, when he gives the ending-days of these same 13 tuns, he makes not one error in the corresponding day-signs or their coefficients.

This, in the writer's opinion, indicates that the day sequence, the 260 days of the tonalamatl, had remained inviolate and unbroken from time immemorial. The

katuns and tuns always had ended on days Ahau; these ending-days followed each other in a generally known and unchanging sequence, and errors were very rarely made in regard to them. The same was not true of the month-coefficients, however. The shift of 1 in the month-positions, the several shifts which the year-bearers had undergone, and most important of all, the fundamental change in their conception of time, from elapsed to elapsing time-periods, had brought about among the Maya a feeling of uncertainty by the time of the Spanish conquest which is clearly reflected in Don Juan Xiu's use of three different systems of month-positions in a series of 13 consecutive tuns.

This loss of 205 positions in the haab in the Xiu records had the following practical effect: For example, let us assume that at the end of the Katun 8 Ahau in which Mayapan was finally destroyed and all the large cities abandoned, 205 positions in the year were dropped from the *u kahlay katunob* when the Xiu moved to Mani. Under the correlation suggested here this was Katun 8 Ahau 3 Pax (12.5.0.0.0), but after these 205 positions were dropped it became Katun 8 Ahau 3 Mol (11.12.0.0.0) and the four remaining katuns down to the katun of Napot Xiu's death changed correspondingly as follows:

The writer's Katun 6 Ahau 3 Zac (12.6.0.0.0) became Katun 6 Ahau 3 Zip (11.13.0.0.0).
 The writer's Katun 4 Ahau 3 Xul (12.7.0.0.0) became Katun 4 Ahau 8 Pax (11.14.0.0.0).
 The writer's Katun 2 Ahau 3 Pop (12.8.0.0.0) became Katun 2 Ahau 8 Zac (11.15.0.0.0).
 The writer's Katun 13 Ahau 8 Kankin (12.9.0.0.0) became Katun 13 Ahau 8 Xul (11.16.0.0.0).

Furthermore, this final Katun 13 Ahau, instead of ending in 1536, as the correlation suggested here indicates, according to page 66 of the Chronicle of Oxkutzcab would appear to have ended in 1539; at least, a Tun 13 Ahau 8 Xul is said to have ended in that Christian year.

This dropping of 205 positions in the year from the Xiu records may have been caused by some attempt to bring the Maya months into agreement with the Nahua months. Whatever may have been the reason why these positions were dropped, their elimination probably did not affect the sequence of the days Ahau on which the katuns ended, as above noted; indeed, these doubtless continued right down to the very end without a break.

The most fundamental principle of Maya chronology, and indeed, of all the calendar systems of Central America and Mexico, which later grew out of it, the Aztec, Zapotec, Cakchiquel, Quiché, etc., was the absolute inviolability of the 260-day count, from which not a single day could be dropped without throwing the whole system into confusion. Thus, assuming these 205 year-positions were dropped at the end of the writer's Katun 8 Ahau 3 Pax, this became 8 Ahau 3 Mol instead, and the following day instead of being 9 Imix 4 Pax, became 9 Imix 4 Mol. In other words, although the sequence of day-positions in the haab was broken, so long as the day sequence itself remained uninterrupted, the sequence of the katuns in the *u kahlay katunob* (which were named after their closing days) was not disturbed.

It is very doubtful whether any similar omission of month positions ever took place among the Itza, and in any event not before Chichen Itza was abandoned in Katun 8 Ahau (1438-1458). The latest date known in the Corpus Inscriptionum Mayarum, that on the temple of the High Priest's Grave at Chichen Itza, 11.19.11.0.0 (1350 A.D.), in a Katun 5 Ahau conforms in every way with the Old Empire chronology, and tends strongly to indicate that so far as Chichen Itza is concerned no break in the continuity of the day positions ever occurred there.

Goodman appears to have reached a similar conclusion when he states that "the 11 Ahau katun of the Itzas, Cocoms, and Chels began December 25, 1536,"¹ although he gives no authority for this statement.

Indeed, a survey of all the foregoing evidence indicates that toward the very end of the New Empire two different systems of naming the katuns may have been in use at the same time, both agreeing as to the day of the terminal date, but disagreeing as to its position in the year.

The Itza in the east retained the Old Empire system intact, whereas the Xiu in the west who were nearer the region from which these Nahua waves were flowing into Yucatan lost contact with the Old Empire count and substituted another, retaining the same ending-days for their katuns as the Itza, but assigning to them different positions in the year. This explains why practically all of the sources agree as to the names of the katuns, that is, 13 Ahau, 11 Ahau, 9 Ahau, etc., in which the different events in the sixteenth century occurred, but disagree when they attempt to fix any day to its corresponding position in the haab.

Although the point escapes actual proof at this time, the writer believes that the most serious of all the discrepancies, the difference of 205 positions in the Maya year and of 3 Christian years, causing a corresponding apparent difference of 259 years between his correlation and that indicated on page 66 of the Chronicle of Oxkutzcab, *i.e.*, between the Xiu and Itza records, did not arise until after the fall of Mayapan in Katun 8 Ahau (1438-1458) and the subsequent removal of the Xiu from Uxmal to Mani. It was during these troubled times that this hiatus probably arose, and that the old continuity of the sequence, at least in the Xiu records, was broken for the first time.

That the Katun 13 Ahau, which ended in 1536 or 1539, was thought to be Katun 13 Ahau 8 Xul instead of Katun 13 Ahau 8 Kankin at the time of the Spanish conquest, the writer is ready to admit on the evidence supplied by page 66 from the Chronicle of Oxkutzcab alone, but that this difference extended back more than 5 katuns appears highly improbable, and more than 14 katuns impossible (11.15.16.12.14). Thus, as an instrument for correlating Christian chronology with the Long Count of the Old Empire, this source must be regarded as unserviceable, and the correlation to which it gives rise must be rejected.

OTHER SYSTEMS OF CORRELATION.

Before closing this Appendix it appears advisable to review, as briefly as may be, the correlations of Maya and Christian chronology proposed by other writers, which differ greatly not only from one and another, but in a few cases, notably those of the German school, from that suggested in the foregoing pages.

These several authorities may be divided into four schools or groups, not only on national lines but also in methods of approach, results obtained, and chronological sequence, as follows:

- (1) The Guatemalan school: Fuentes y Guzmán (1689), Juarros (1808), and Galindo (1834).
- (2) The French school: Pérez (1842), Brasseur de Bourbourg (1858), Valentini (1879), and de Rosny (1883).
- (3) The German school: Sapper (1897), Förstemann (1902), Seler (1902), and Lehmann (1910).
- (4) The American school: Bowditch (1901), Goodman (1905), Morley (1910), Joyce (1914), and Spinden (1913 and 1919).

¹Goodman, 1905, p. 645.

I. THE GUATEMALAN SCHOOL.

The efforts of this school may be dismissed with brief comment. The correlations suggested are only approximate, in the cases of Fuentes y Guzmán and his copyist, Juarros, being nothing more than the bare statement that Copan was occupied and in a flourishing condition down to its conquest by Hernando de Chaves in 1530. (See Appendix V.) This belief, of course, rests on the assumption that the town of Copan conquered in that year by Hernando de Chaves was the same place as the great group of ruins now known by that name, but even Garcia de Palacio, writing as early as 1576, suspected that this was not the case,¹ as also Stephens² in 1839. Finally, in 1885, Maudslay completely demonstrated the untenability of this position,³ and a decade later Gordon reached the same conclusion.⁴

Galindo believed Copan was colonized by "the Tultecos" from Mexico about the close of the sixth century after Christ,⁵ and continued to be occupied down to the Spanish Conquest at the height of its perfection,⁶ and even afterward.⁷

These early attempts at correlating Old Empire and Christian chronology were based upon the erroneous assumption above noted; they have no scientific value and are only of interest because they were the first ventures in this particular field.

2. THE FRENCH SCHOOL.

The first serious attempt to correlate New Empire and Christian Chronology, based upon reliable data and scientific in method, was that of the Yucatan antiquary Don Pío Pérez, who published his correlation under the title of "Ancient chronology of Yucatan; or a true exposition of the method used by the Indians for computing time," as an appendix to Volume I of Stephens's *Incidents of Travel in Yucatan*.⁸

"The fundamental point of departure from which to adjust the Ahaus [*i.e.*, katuns] with the years of the Christian Era, to count the periods or cycles, which have elapsed, and to make the years quoted by the Indians in their histories agree with the same era, is the year of our Lord, 1392, which according to all sources of information confirmed by the testimony of Don Cosme de Burgos, one of the conquerors, and a writer (but whose observations have been lost) was the year in which fell the 7 Cauac giving in its second day the commencement of 8 Ahau, and from this as from a root, all that preceded and have followed it are adjusted according to the table of them which has been given, and as this agrees with all the series that have been found, it is highly probable that it is the correct one."⁹

Unfortunately, Pérez believed the katun was composed of 24 years of 365 days each in place of 20 tuns of 360 days each, which brings him to the year 144 A. D. as the beginning of the *u kahlay katunob* given on page 499, which, according to the correlation suggested here, occurred in 176 A. D., with the Initial Series 9.0.0.0.0.

Brasseur de Bourbourg's correlation is also based on the chronicle from the Book of Chilán Balam of Mani, and curiously enough is within 2 years of the date suggested by the writer for the opening entry in the *u kahlay katunob* on page 499:

"Maya chronology fixes the year 174 of the Christian Era for the departure of the four Tutul Xius: 'leaving the house of Nonohual, and the Land of Tulapan which is to the west of Zuyua, having at their head Holon-Chan-Tepeuh.' This epoch was also that of their arrival in Chacnouitan. But after that, this chronology remains silent until the year 258, which it gives as the epoch of a new migration of the Tutul Xius and of their establishment in the province of Zyan-Caan to the southeast of the Yucatecan peninsula."¹⁰

¹See Appendix IV, p. 541.

²Stephens, 1841, vol. 1, pp. 99, 101, 160.

³Maudslay, 1886, p. 591.

⁴Gordon, 1896, p. 3.

⁵Galindo, 1835a, p. 546; see also page 19 and Appendix XI, page 595.

⁶*Ibid.*, 1835a, p. 545; see also note 3 on page 19 and Appendix XI, page 601.

⁷*Ibid.*, 1835a, p. 549; see also note 3 on page 19 and Appendix XI, page 603.

⁸See Stephens, 1843, vol. 1, pp. 434-459.

⁹*Ibid.*, p. 442.

¹⁰Brasseur de Bourbourg, 1857-1859, vol. 11, p. 3.

The most scholarly correlation of this second group of writers was that proposed by P. J. J. Valentini in his *Katunes of Maya history*, also based upon the same chronicle as the two preceding:

"According to this statement the 13th Ahau [*i. e.*, Katun 13 Ahau] ended with the year 1542. Bishop Landa (see section 41 of his *Relacion de las Cosas de Yucatan*) confirms the correctness of the above calculation, though he says that the 13th Ahau expired with the year 1541. Landa undoubtedly selects this date of June 10, 1541, as that of the last decisive victory at T'ho over the Indians, while the author of the manuscript may have had in mind the date when Merida was officially incorporated as the capital and a dependency of the Spanish crown, which was January 6, 1542. If we subtract the total number of Ahaues [*i. e.*, katuns] already obtained, and amounting to 1,400 years from the year 1542, we obtain for the first epoch named in the manuscript, which is the 8th Ahau [Katun 8 Ahau] or the starting of the conquerors from Tulapan, the years 142-162 of our modern Christian Era."¹

Valentini's correlation differs from that proposed by the writer by 14 years, due to the two following factors: First, Valentini counts a katun as composed of 20 full years, whereas it is only composed of 19.713 years, which, in the 69 katuns between the Katun 13 Ahau in which Napot Xiu died, and the Katun 8 Ahau with which the *u kahlay katunob* begins, makes a difference of 19.80 years; and second, he regards the Katun 13 Ahau of Napot Xiu's death as having ended in 1542.016 instead of 1536.982, as the writer believes, *i. e.*, a difference of about 5 years; and these two factors, one working forward and the other backward, make a difference of 14 years between the two correlations.

The correlation suggested by de Rosny is worthless.² He makes a triple error which leads him 25 years astray for the date of the opening entry in the *u kahlay katunob*. In the first place, he follows Pérez in regarding the katuns as 8,760 days in length (*i. e.*, 24 years of 365 days each); in the second place, he regards the dates given in the *u kahlay katunob* as the beginning-days of the katuns, instead of their ending-days; and in the third place, he assumes Katun 13 Ahau began in 1531 and ended in 1555. Under this correlation a date of 1511 A.D. is reached for the beginning of the *u kahlay katunob*.

None of the writers of this group made any attempt to correlate the New Empire chronology with that of the Old Empire, and in fact the only one of the five *u kahlay katunob* with which they were familiar was that from the Book of Chilán Balam of Mani. They were, however, the first to make a serious attempt at correlating New Empire and Christian chronology, and their results have been followed by the later Yucatecan historians, Ancona,³ Carrillo y Ancona,⁴ and Molina Solís.⁵

3. THE GERMAN SCHOOL.

The German School of correlation would bring the period of the Old Empire down to a much later date, even as late as the fifteenth and sixteenth centuries of the Christian Era. Sapper was the first German to come forward with a correlation, based upon the *u kahlay katunob*, like those of the preceding school:

"And it seems to follow from the manuscript (*Lelo lai utzolan katunil ti Mayab*) supplied and translated by Brasseur de Bourbourg in his Diego de Landa, that even in historic time (end of the 5th century A. D.) a section of the Mayas from the south settled in southeast Yucatan, and gradually pushed northward until they captured Chichen Itza (8th century) and Champutun (9th century) and thereby caused a migration in a southerly direction of the people (Itzaes) living there."⁶

In this rather vague passage Sapper appears to place the original departure from Tulapan at the end of the fifth century; the "capture" of Chichen Itza in the

¹Valentini, 1879, p. 109.

⁴See Carrillo y Ancona, 1871.

²Rosny, 1883, pp. 33-36.

⁵See Molina Solís, 1896.

³See Ancona, 1878-1905.

⁶Sapper, 1897, p. 400.

eighth century, and the "capture" of Champutun (Chakanputan) in the ninth century, whereas the dates for these events in the correlation suggested here are 176 A. D., 531 A. D., and 709 A. D., respectively, each about three centuries earlier.

His closing statement that this movement northward into Yucatan caused the people then living there, the Itza, to move south is utterly without foundation. On the contrary, it was the Itza themselves who first moved into Yucatan at this time and in all probability found the country absolutely devoid of earlier inhabitants.¹ Sapper seems to have made no attempt to correlate the Old Empire chronology with the Christian Era, and even for the *u kahlay katunob* his results are highly unsatisfactory, although they are the best of all the German correlations, placing the dates of these events several centuries earlier than any of the other German authorities.

Förstemann represents the other extreme, his final correlation making the majority of the Old Empire cities so recent as to have been occupied down almost to the discovery of America, and some sites even as late as 1577. His earlier correlation was even more improbable. For example, he says the important date 9.9.16.0.0 4 Ahau 8 Cumhu on page 24 of the Dresden Codex may refer to the destruction of Mayapan, which he places in 1436.² If this correlation were correct, it would place the date of Stela 2 at Quen Santo, which is 10.2.10.0.0, 250 years later, or in 1686, actually more than a century after the Spaniards had conquered and occupied the region where this monument was found (see plate 1); and it would make the Great Period of the Old Empire *begin* in 1538, that is, actually 14 years *after* the conquest of Guatemala by Pedro de Alvarado in 1524, and finally, it would make the whole period coincident with the first century of the Spanish occupation. This result was so fanciful that Förstemann later placed his correlation 104 years earlier. He says in this connection:

"First the tenth cycle [*i. e.*, 9.0.0.0.0 to 10.0.0.0.0] should not be placed too early, for the civilization of the Mayas in historic time is exactly the same as that displayed on the monuments. Second, it should not be placed too late, for it is creditably reported that upon their arrival the Spaniards found the principal places containing monuments, such as Palenque, Copan, and Quirigua, in ruins."³

He then proceeds to correlate a number of the monuments of Copan and Quirigua with what he believes were their corresponding equivalents in Christian chronology. Thus for Stela N at Copan, 9.16.10.0.0, he proposes the year 1459 A. D. And on this basis his date for 9.0.0.0.0 would be 325 years earlier or 1134 A. D. These even still entirely too recent dates for the Old Empire cities force him to reject the Chichen Itza lintel, the Initial Series of which is 10.2.9.1.9, as questionable, and possibly inaccurately deciphered, since even in his amended correlation 10.2.9.1.9 fell in the year 1576 and 10.2.10.0.0 (Stela 2 at Quen Santo) in 1577.

In a still later passage he apparently contradicts his previous correlation:

"If it is correct we have the day VIII 4 [*i. e.*, 8 Manik]; 10 4 [*i. e.*, 10 Zotz] (in the year) 5 Cauac, which in my opinion falls in the year 1496, the beginning year of [Katun] 2 Ahau, and to which the day number [*i. e.*, the Initial Series number] 1,426,507 [*i. e.*, 9.18.2.9.7] would belong; see my treatise 'The Tenth Cycle of the Mayas,' in Globus, vol. 82, No. 9."⁴

But this is surely an error, for if he correlates 9.16.10.0.0 with 1459 as above, then 9.18.2.9.7 8 Manik 10 Zotz will fall in 1491, or at best 1492, whereas he gives it in this last passage as falling in 1496. This can not be true, since the difference between 9.16.10.0.0 and 9.18.2.9.7 is only 32.05 years, not 37 years, and $1459 + 32.05 = 1491.05$.

Even his amended correlation is historically impossible. For example, it makes the Spanish Conquest of Guatemala in 1524 actually *precede* the closing

¹See Mercer, 1896, p. 167.

²Förstemann, 1901, p. 51.

³*Ibid.*, 1902, p. 141.

⁴*Ibid.*, 1904a, p. 361.

dates of many of the Old Empire cities, Stelæ 1, 8, 9, 10, and 11 at Seibal, Stela 11 at Tikal, Stelæ 1 and 2 at Flores, Stela 1 at Ucanal, Stela 1 at Benque Viejo, and Stela D at Nakum, and it may be rejected outright on historical grounds.

Nor is Seler's correlation much better, being open to the same objection in only a slightly lesser degree. After side-stepping the question several times, even going so far as to assert that "it is therefore no longer possible to establish a connection between our chronology and the dates on the monuments,"¹ he proceeds to fall in line with the rest of the German school and to make a correlation which is almost as improbable as the one proposed by Förstemann:

"At the end of my second treatise published in the 32nd volume of the *Zeitschrift für Ethnologie*, p. 188 *et seq.* [see also Seler, 1902-1908, vol. 1, pp. 835, 836], I referred to the fact that the region where I obtained the Sacchaná [Quen Santo] fragments of stelæ was abandoned about the middle of the sixteenth century, so that these fragments were hidden at that time in the cave where they were subsequently found. But undoubtedly these fragments, like all these monuments and the stelæ of Copan and Quirigua, formerly stood exposed. Now since the material is a chalky limestone of slight endurance, incapable of resisting the elements for a long time, it can be assumed as in a measure probable that these most recent of the known dated monuments were erected about the middle of the fifteenth century. This would place the golden age of Quirigua [*i. e.*, 9.15.15.0.0 to 9.19.0.0.0] between the end of the thirteenth and the end of the fourteenth centuries, the nephrite slab from the Rio Graciosa (?) [*i. e.*, the Leyden plate, 8.14.3.1.12] approximately in the year 900, and according to my previous assumption fix upon the year 700 as the latest limit which we should have to assume for the discovery of the elements of the writing, the invention of the calendar, and the age of the Kingdom of Tollan."²

On the basis of Seler's statement that 10.2.10.0.0 (Stela 2 at Quen Santo) fell about the middle of the fifteenth century, 9.0.0.0.0 would have fallen 443 years earlier, or about 1007 A. D. His introduction of the kingdom of Tollan here is purely gratuitous, having nothing whatever to do with the subject in hand. It serves to illustrate, however, Seler's strong Mexican bias in approaching all Maya problems, and his constant tendency to look for Nahua origins of purely Maya cultural phenomena, whereas the truth is that such borrowings as are found, were all the other way, *i. e.*, by the Nahua from the Maya, save only during the Toltec Period of the New Empire, after 1182-1201, when a late Nahua influence made itself strongly felt at certain New Empire cities, notably Chichen Itza.

Finally, we have the correlation of Lehmann, proposed more recently than any others of the German school, but almost as inaccurate as the preceding:

"There is an interval of 350 years between the earliest and the most recent dates of the monuments of Quirigua, while the famous nephrite slab of Leiden (from the borders of British Honduras and Guatemala) is some 560 years older than the most recent of all the dated monuments hitherto known, namely, the stela fragment of Sacchaná [Stela 2 at Quen Santo].

"The majority of the dates of the monuments of Copan and Quirigua are, however, included in a period of about 180 years, while the oldest known dated monument, Stela C at Quirigua,³ is appreciably nearer in time to the Leiden slab than the other more recent monuments with inscriptions. Since the ruins where these monuments occur were in this condition for the greater part, at the time of the *conquista*, I conclude from this fact, and also from the good state of preservation of the easily weathered stone material of the monuments, that the Golden Age was in the tenth to eleventh centuries after Christ."⁴

¹See Seler, 1902-1908, vol. 1, p. 790. See also *ibid.*, pp. 835, 836.

²See *ibid.*, vol. 11, pp. 29, 30.

³Lehmann falls into error here, believing the Initial Series 9.1.0.0.0 on the west side of this monument declares its contemporaneous date. This is not the case, however, the contemporaneous date being the Period Ending date 9.17.5.0.0 on the opposite (east) side, about 320 years later. This latter date places Stela C in its proper position (9.17.5.0.0) in the sequence of the Quirigua monuments and not 276 years earlier than the next earliest contemporaneous monument there (Altar M, about 9.15.0.0.0).

⁴Lehmann, 1910, p. 693, note 1.

Assuming that Lehmann is referring to the last half of Cycle 9 (*i. e.*, 9.10.0.0.0 to 10.0.0.0.0, the Middle and Great Periods of the Old Empire) when he speaks of the "Golden Age" of Copan and Quirigua, we reach about 700 A. D. for 9.0.0.0.0 in his correlation.

It is apparent from the foregoing quotations, ranging from Sapper's 490 A. D. ca. to Förstemann's 1134 A. D. for 9.0.0.0.0, that these German correlations all place the period of the Old Empire much too late, making its Middle and Great Periods approximately contemporaneous with either the Renaissance or Toltec Period of the New Empire.

This is a necessary corollary from their correlations, since no matter what may be thought of the correlations of the *u kahlay katunob* and Christian chronology and of the former with the Long Count (*i. e.*, the Initial Series) suggested here, the fact remains that the first chronicle from the Book of Chilán Balam of Chumayel carries Maya history back in an unbroken stretch of 56 katuns, *i. e.*, 1,103.93 years, from 1536 A. D. to the discovery of Chichen Itza, which it fixes as having taken place some time between 432 and 452 A. D., depending on what part of Katun 6 Ahau the discovery was made. And this being true, it would follow from the German correlations that much of the history of Yucatan was prior to 9.0.0.0.0, and that Copan, Palenque, Tikal, Yaxchilan, Piedras Negras, etc., were actually the contemporaries of Chichen Itza, Uxmal, Mayapan, Izamal, etc. This is indeed *reductio ad absurdum*. It is contrary to every item of archæologic and historic evidence, and these four German correlations may be rejected in entirety.

4. THE AMERICAN SCHOOL.

The first American correlation brought forward was that of Bowditch, based upon the three passages in III, IV, and IX, describing Event C. By looking for a Tun 13 or Tun 14 (depending on whether Napot Xiu died 5 or 6 years before the end of the katun) of any Katun 13 Ahau when the day 9 Imix fell on 18 Zip (*i. e.*, 19 Zip) and the year-bearer (*i. e.*, 2 Pop) was 4 Kan, he finds in Goodman's tables three places, more than 11,200 years apart between the extremes, where these several conditions are fulfilled, two of which are so improbable that he rejects them, accepting the third as the proper correlation of Maya and Christian chronology:

"If now we accept the first date of 55.13.2.13.3.1,¹ as the date of Ahpula's death, we shall have the date of Stela 9 of Copan as A. D. 34 [*i. e.*, B. C. 94 for 9.0.0.0.0, 128 years earlier], since the death occurred in 1536. If we accept the second date, 55.9.17.14.11.1,² as the true one, Stela 9 must represent a date of B. C. 3814 [*i. e.*, B. C. 3942 for 9.0.0.0.0], and in the case of the third date, 57.2.14.13.16.1,³ in which the period to elapse to the end of Katun 13 Ahau is the nearest to an exact 6 tuns, we should throw back Copan to B. C. 11,250 [*i. e.*, B. C. 11,378 for 9.0.0.0.0]. It is not probable, however, that either of the last two dates is correct, both because of the immense time which would have elapsed, and because the monuments show signs of no such age. We are, therefore, left to the date A. D. 34 as the probable date of the earliest stela of Copan which we know of at present."⁴

The writer has already given the reasons why he rejects this correlation in connection with the discussion of Event C on pages 478-487. Aside from the several excellent positive reasons for preferring the correlation here suggested, which does not aim at exactness to the day, as does that of Bowditch, his mistrust of the year-bearer 4 Kan in these passages, the ambiguity of the expression "6 tuns were

¹According to the writer's conception of the Long Count, based upon the evidence furnished by Stela 10 at Tikal, where the great-cycles, great-great-cycles, great-great-great-cycles, and possibly even the great-great-great-great-cycle of an Initial Series appear to be recorded, this date would read: (1).1.11.19.13.2.13.3.1 9 Imix 19 Zip.

²This date the writer would express as (1).1.12.0.2.17.14.11.1 9 Imix 19 Zip.

³This date the writer believes was (1).1.12.1.1.14.13.16.1 9 Imix 19 Zip.

⁴See Bowditch, 1901a, pp. 136, 137.

lacking to the end," and finally, the certainty that 9 Imix 18 Zip (*i. e.*, corrected to 19 Zip) could not have been the day of Napot Xiu's death if he died in 1536, as all sources agree, have led him to reject the more detailed data in these three passages and to accept only the larger fact in which they all concur, namely that Napot Xiu died in 1536 in Katun 13 Ahau, which also agrees so remarkably with all the other events described.

Goodman, of all the American investigators, assigns the most recent dates to the Old Empire cities; his correlation, like the others, is based upon the evidence furnished by the chronicles in the Books of Chilan Balam, which, however, he interprets differently from everybody else:

"Thus the assurance given us by the annual calendar is made doubly sure, and we may rest certain that the 13 Ahau 7 Xul [*i. e.*, 8 Xul], which fell on October 30, 1539, was the end of a 13 Ahau katun [*i. e.*, Katun 13 Ahau] in the Xiu chronological count. We next turn to the Archaic calendar for a katun-ending with 13 Ahau 8 Xul, remembering we are supposed to have overcome the difference of a day [*i. e.*, between 7 Xul and 8 Xul]. We must also keep in mind that owing to my rearrangement of the calendar [*i. e.*, his rearrangement of his own tables], it will be a date now at the head of a column.

"Happily, in support of the correctness of the Xiu chronology, we find it in a reasonable position—the 16th katun of the 11th cycle of the 54th great cycle [*i. e.*, 11.16.0.0.0].

"Assuming that date to have been October 30, 1539 (as the foregoing considerations show there is just reason for so doing), we are enabled to aline every other date in the Archaic scheme and to fix at least the prosperous period of all the ruined cities.

"The result shows that Copan, Quirigua, Tikal, Menche, Piedras Negras, and the other more modern capitals flourished from the sixth to the ninth century of our era, speaking in round terms, and that Palenque was in existence 3,143 years before Christ."¹

It must be admitted at the outset that Goodman's correlation agrees closely with that given on page 66 of the Chronicle of Oxkutzcab, in spite of the fact that he could have had no knowledge of that manuscript when he proposed his correlation. Remarkable as this agreement is, it should not be stressed too strongly, however, in its favor, since he freely admits he follows Xiu sources, and that the Itza, Chel, and Cocom records were different. The pivotal point of his correlation is the statement that Katun 13 Ahau 8 Xul ended on October 30, 1539, which agrees with page 66 of the Chronicle of Oxkutzcab to this extent, that the latter states that Tun 13 Ahau 8 Xul ended in the year 11 IX, which began in 1539.

The evidence upon which Goodman based his identification of this katun is nothing more than an unwarrantable translation of the passages in III, IV, and IX describing Napot Xiu's death. He first accepts a passage in I, and another in an unnamed Book of Chilan Balam quoted by Brinton (see No. 2, page 495), both of which indicate that 1541 was a year 13 Kan, in which case 1536 could not have been 4 Kan, but 8 Cauac. He accepts 4 Kan, however, as the year of Napot Xiu's death and next looks for its nearest occurrence to 1536, which he finds as beginning in July 1545. This he admits was in Katun 11 Ahau, thereby throwing over the only two points which the writer believes it is safe to accept in these three entries, first, that Napot Xiu died in 1536, and second, that this fell somewhere in Katun 13 Ahau. He justifies these emendations of the original sources by mistranslating the passage *uacp'el haab u binel ma tz'ococ u xocol oxlahun ahau cuchie* as "the sixth year will not end from the count of the 13 Ahau," which in Gates's opinion is not the sense of the Maya here at all, the meaning probably being that 6 tuns were still lacking before the end of Katun 13 Ahau.

Having previously decided the year of Napot Xiu's death was 1545, 6 years before that brings him to 1539 as the year in which Katun 13 Ahau ended. Finally,

¹See Goodman, 1905, p. 646. Goodman evidently believed that the Cycle 1 dates at Palenque were historical and that the monuments upon which they are inscribed date from that remote period. There is little doubt, however, but that these early dates were mythological or possibly astronomical in nature, and in every case Secondary Series bring them down to very much later times, *i. e.*, to the middle of Cycle 9.

since he finds only one 13 Ahau in the sixth tun before 9 Imix 19 Zip, and since that one was 13 Ahau 8 Xul, he assumes that 8 Xul was the position in the haab on which the Katun 13 Ahau referred to in these three passages ended.

Aside from all the archæological and historical objections to this correlation noted in the discussion of page 66 of the Chronicle of Oxkutzcab, which of course apply here as well, Goodman's correlation contradicts, in their larger aspects, the very sources upon which his conclusions are based. For example, he states that Napot Xiu died in 1545 in Katun 11 Ahau, whereas all of the authorities except Cogolludo, as we have seen, give the Christian year as 1536, and III, IV, and IX the katun as 13 Ahau, and X as the first tun of 11 Ahau.

Again, if 1539.830 was the end of Katun 13 Ahau, then the end of Katun 2 Ahau was 1520.117, which contradicts the entry in I, stating that a katun ended in 1517. And further, if Katun 13 Ahau ended in 1539.830, then the fifth tun of Katun 11 Ahau ended in 1544.758, which contradicts the entry in I stating that Merida was founded after the fifth tun of Katun 11 Ahau was completed, the actual foundation having taken place in 1542.016, as we have already seen.

Again, if 1539.830 was the end of Katun 13 Ahau, then the sixth tun of Katun 9 Ahau ran from 1564.471 to 1565.457, which contradicts the entry in X to the effect that Bishop Toral arrived in the sixth tun of Katun 9 Ahau, the date of his arrival actually having taken place between 1562.583 and 1562.622.

These contradictions are so numerous and so striking that on the face of them it appears highly improbable that Goodman's correlation can be correct. As representing Xiu chronology at the time of the Spanish Conquest, however, it may be safely accepted in view of its remarkable agreement with page 66 from the Chronicle of Oxkutzcab, but as a correlation of Christian and Old Empire chronology the writer believes it may be just as surely rejected.

Joyce reaches a date of 95 B. C. for 9.0.0.0, or within one year of the date reached by Bowditch for the same cycle-ending:

"I have tried to show that the buildings at Chichen Itza may be divided into three main classes, corresponding in a rather remarkable manner to the principal epochs of Tutul Xiu tradition; and I have pointed out that what may be considered the earliest group is distinguished by a date in the "long count" characteristic of the central Mayan region. I have also explained that there is reason to believe that Chichen was inhabited before the arrival of the Tutul Xiu, and the presence of the early Maya in Yucatan is supported by the "long count" date at Tulum.¹ . . . In any case the essential point on which I would lay stress is that the initial date at Chichen belongs to the period before the arrival of the Tutul Xiu. Now, the katun expressed in this initial date would be termed in the short count 'katun 3. ahau,'² and I think it reasonable to assume that this corresponds with the last 'katun 3. ahau' of the Tutul Xiu chronology *before* they arrived at Chichen Itza. It may, of course, be earlier, but I think this extremely unlikely, having regard to the similarity between such buildings as the Monjas group and those of the central Mayan area. If this assumption be admitted, then the dates of the monuments can be brought into line with historical chronology, as appears in the Appendix."³

¹As already noted in Chapter V, this early Tulum date, 9.6.10.0.0 on Stela 1, to which Joyce refers, is not the contemporaneous date of that monument, but a date exactly 1 cycle earlier. The contemporaneous date is 10.6.10.0.0, actually 80 years later than that on the Chichen Itza lintel. (See Morley, 1918a, pp. 274, 275.) Joyce, however, uses this early noncontemporaneous date in support of his contention that there were Maya at Chichen Itza before the arrival of the first migration thither mentioned in the Books of Chilán Balam (Joyce, 1914, p. 349). This argument, in so far as it depends upon 9.6.10.0.0 as the date of the Tulum stela, therefore collapses in view of this later reading.

²Joyce is in error here when he states that the katun expressed by the Chichen Itza Initial Series was Katun 3 Ahau. As already noted, the current katun of that Initial Series was a Katun 1 Ahau (10.3.0.0.0 1 Ahau 3 Yaxkin), the previous katun being 3 Ahau (10.2.0.0.0 3 Ahau 3 Ceh). This error makes no difference in his final result, however, since he correlates this Katun 3 Ahau with 10.2.0.0.0, as it should be.

³Joyce, *ibid.*, pp. 359, 360. Joyce has been included in the American group, since his correlation follows the method first proposed by the writer. (See Morley, 1910a, and above.)

Joyce's correlation follows the same method of procedure as that first suggested by the writer in 1910, and would have reached the same result had he not made the obviously unlikely assumption that the Chichen Itza lintel dates from the Katun 1 Ahau *before* the city is first said to have been discovered in the *u kahlay katunob*, instead of the first Katun 1 Ahau after that entry. He overcomes the resulting anachronism, which, if left unexplained, is fatal both to his correlation and that of Bowditch, by assuming that the site had been previously colonized by earlier migrations of the Maya not noted in the *u kahlay katunob*, and that the Initial Series lintel was made by these earlier unmentioned inhabitants of the city. Indeed, according to his correlation-table¹ the Itza² did not reach Chichen Itza until 10.10.0.0.0, some 150 years *after* the contemporaneous date of the Initial Series lintel. This assumption, however, is not borne out by the archæological evidence he cites,³ and moreover, his hypothesis is contradicted by the chronicles themselves, which use such expressions as "in these years that they ruled Bakh'al it occurred then that Chichen Itza was discovered,"⁴ "it occurred that Chichen Itza was learned about,"⁵ "in Katun 6 Ahau took place the discovery of Chichen Itza,"⁶ in describing this event.

Joyce follows Brinton here in believing that Chichen Itza was already in existence when the first migration recorded in the *u kahlay katunob* reached there.⁷ This is unnecessary, as the verb *chicpahci* is properly rendered discovered, and as used in this connection doubtless refers to the discovery of the two great natural wells or *cenotes* around which the city of Chichen Itza (literally "the mouths of the wells of the Itza") later grew up.

To postulate a settlement there prior to the discovery of the site in 9.14.0.0.0 6 Ahau 13 Muan is contrary not only to the best interpretation of the archæological and documentary evidence, but also to the historical probabilities of the case, and this correlation also may therefore probably be dismissed.

Spinden in his first correlation⁸ assigns the date 160 A. D. to 9.0.0.0.0, but recently he has brought forward another for which he claims accuracy to the day.⁹ Under the latter he reaches March 31, 304 A. D. (N. S.), for 9.6.10.0.0 and February 3, 176 A. D., for 9.0.0.0.0. His method is composed of the same two steps as those mentioned on page 467, and indeed for his second step, the correlation of the *u kahlay katunob* with Old Empire chronology, he accepts the writer's correlation, first announced a decade ago. His method in the first step differs only in the fact that he has brought to bear on this phase of the problem the current Aztec chronology of the early sixteenth century, which was contemporaneous with the close of the New Empire in Yucatan, an interesting and new contribution, although hardly to be trusted as conclusive evidence in the Maya correlation problem.

¹See Joyce, 1914, Appendix III.

²Joyce (*ibid.*, p. 359) states that it was the Tutul Xiu who arrived at Chichen Itza on this migration, but the chronicles themselves clearly state that it is the Itza whose movements are being described. (See Brinton, 1882, pp. 101, 145, 159, and 169.)

³Joyce, *ibid.*, p. 349. It is true there are three distinct architectural periods at Chichen Itza, as stated by Joyce: the first period from which dates the Initial Series lintel here under discussion, and that part of the city known as Old Chichen Itza; the second or Renaissance period, exemplified by such buildings as the Monjas and associated structures, the Red House, etc.; and the third or Nahua period, from which date by far the greater number of the buildings now standing, the Castillo, the Ball Court, the High Priest's Grave, and probably all that great architectural complex known as the Court of the Columns. Where Joyce appears to the writer to fall into error is in believing the first period at Chichen Itza was prior to its discovery as recorded in the Books of Chilan Balam, rather than *after* it. Mercer clearly demonstrated there was no earlier occupation of Yucatan than that of the Maya, and to presuppose the Maya were there before their own chronicles say the country was discovered is indeed piling up imaginary obstacles in the way of a simple logical solution of this question.

⁴Brinton, 1882, p. 101.

⁵*Ibid.*, p. 144.

⁶*Ibid.*, p. 158.

⁷*Ibid.*, p. 124.

⁸Spinden, 1913, table 2.

⁹This latter correlation was announced in a paper read before the American Anthropological Association at Cambridge, Massachusetts, on December 29, 1919.

Spinden assumes that the specimen year 12 Kan given by Landa was the year 1553-1554, which we have already seen (page 497) is probably true, and that it may have begun on July 16, 1553 o. s. (July 26, 1553 n. s.). This latter assumption, however, is very doubtful, although it is evident Landa so believed, since he begins his specimen year 12 Kan on July 16.

A passage from the Book of Chilan Balam of Mani, and another from the Book of Chilan Balam of Tizimin (see Nos. 9 and 10 respectively on page 495), however, while they confirm the fact that the year 12 Kan began in 1553, indicate that its opening day fell on July 10 and not July 16.¹ In other words, two native sources of highest general reliability here contradict a Spanish source on a matter concerning both chronologies. In such cases the writer prefers to follow the native sources, particularly when the Spanish authority is Landa, whose statements concerning the native chronology, while accurate in a general way, are rarely precise.² If this point were the only objection to Spinden's correlation, it might be overlooked on the grounds that it would only dislocate his tables of equivalents by 6 days, but there are others, even more serious.

Accepting 12 Kan 2 Pop as equal to July 26, 1553 (n. s.) for his point of contact, and holding fast to 9 Imix 19 Zip in a year 4 Kan as the date of Napot Xiu's death, he reaches the date September 22, 1545, for that event, thereby not only sacrificing the statements of III, IV, and IX that it occurred in a Katun 13 Ahau, and of X, that it occurred in the first tun of Katun 11 Ahau, but also throwing over the almost unanimous opinion that it occurred in 1536.

It is the same old question over again in any correlation which rests on this passage in III, IV, and IX, what to accept and what to reject, since as they stand they contradict themselves in the light of practically all the other evidence.

If Napot Xiu died in a year 4 Kan on the day 9 Imix 19 Zip, then he did not die in 1536 or in a Katun 13 Ahau, unless all the other authorities are in error. Or, on the other hand, if he died in 1536 in a Katun 13 Ahau, then he could not have died on 9 Imix 19 Zip in a year 4 Kan. The whole question reduces itself as to which must be rejected. The writer has chosen to hold to the larger time period in each chronology involved here, the katun and the Christian year, while Spinden and Bowditch hold to the smaller time period in each, the year-bearer and the Gregorian day.

Spinden next accepts the writer's correlation of the *u kahlay katunob* and the Long Count as already noted, and assigns to the Katun 13 Ahau just before the final conquest of the country, the Initial Series 12.9.0.0.0 13 Ahau 8 Kankin, and using his value of September 22, 1545 (n. s.) for 9 Imix 19 Zip, he runs back until he finds the first occurrence of 13 Ahau 8 Kankin before this, which will be April 22, 1536 (n. s.). But this value for the end of Katun 13 Ahau contradicts both I and X in fundamental statements, as the following will show. April 22, 1536, n. s., was April 12, 1536, o. s., or, as used in this discussion, 1536.281. Spinden therefore ends Katun 13 Ahau in 1536.281 and the previous katun, 2 Ahau, in 1516.568, which is in contradiction to the statement in I that a katun ended in 1517.

Again, his correlation makes Tun 6 of Katun 9 Ahau run from 1560.922 to 1561.908, whereas X states that Bishop Toral arrived in this tun, and the Spanish sources agree that he arrived between 1562.583 and 1562.622, nearly 9 months later.

¹These passages both state that 11 Chuen 18 Zac fell on February 15, 1544 (o. s.), on which basis, allowing for the leap years in 1544, 1548, and 1552, 12 Kan 2 Pop would have fallen on July 10, 1553 (o. s.), 6 days earlier than Landa's date.

²For example, he assigns the arrival of the Spaniards at Merida, which took place in 1541, to Katun 11 Ahau correctly, but proceeds to make it the first tun of that katun, instead of the sixth or seventh, as most of the native authorities indicate.

The most remarkable point brought to light by Spinden (but, as already noted, unfortunately one which can not be relied upon in correlating the Long Count with Christian chronology, as shown by the above disagreements with the native sources to which his correlation gives rise) is the fact that at the time of the Spanish Conquest the New Empire year-bearers were only 1 day behind the Aztec day-count if 12 Kan 2 Pop really was equal to July 16, 1553 (o. s.).

The point of contact between Aztec chronology and the Christian Era is the statement, generally admitted, that Tenochtitlan (Mexico City) fell on August 13, 1521, or as Spinden uses all his dates in New Style, August 23, 1521, in a year 3 Calli, on the day 1 Coatl 3 Xocouetzi. On this basis he finds that the Maya year 6 Kan began on August 3, 1521 (N. s.), while the corresponding Aztec day 6 Cuezpalin was 1 day earlier, August 2, 1521. This is a striking coincidence to say the least, but even if it were due to a former direct correlation, it only goes to prove the writer's contention that the chronology in current use in Yucatan at the time of the Spanish Conquest had been powerfully affected by Aztec chronology, even to the point of losing its most fundamental characteristic, the conception of time as a succession of elapsed units. And most important of all, it can not be relied upon to establish a day-for-day correlation between Christian and Old Empire chronology.

The writer has already expressed his distrust of these so-called exact correlations. Eventually, by means of astronomical data indubitably present in the inscriptions, it is hoped that such an exact alinement of the two chronologies may be effected, but with the data now available for this purpose in the early Spanish and native writings no such accuracy can be achieved, nor indeed should such be sought. The original sources are too inexact to warrant such close reading. Moreover, in the case of Spinden's correlation, aside from this general criticism of his method, several specific examples of disagreement with the *u kahlay katunob* and Nakuk Pech have been cited, which are sufficient in themselves to cause its rejection as a day-for-day alinement of the two calendars.

The correlation of Maya and Christian chronology according to different authorities.

Authority.	Date in Christian Era corresponding to 9.0.0.0.0 of Maya Era.	Authority.	Date in Christian Era corresponding to 9.0.0.0.0 of Maya Era.
	B. C.		A. D.
Joyce.....	95	Spinden.....	176 ¹
Bowditch.....	94	Morley.....	176
	A. D.	Goodman.....	435
Pérez *.....	144	Sapper *.....	ca. 490
de Rosny *.....	151	Lehmann.....	ca. 700
Valentini *.....	162	Seler.....	ca. 1007
Brasseur de Bourbourg *.....	174	Förstemann.....	1134

The above table gives the equivalents in Christian chronology for the Initial Series 9.0.0.0.0 8 Ahau 13 Ceh according to the several systems of correlation described, those of the Guatemalan group alone being omitted as too indefinite for inclusion in a table of this sort. Authorities marked with an asterisk (*) do not give a correlation of the Initial Series and the *u kahlay katunob*, and the equivalents

¹Spinden's year for 9.0.0.0.0, 176 A. D., agrees with that suggested here, for the reason that he agrees with the writer in accepting 12.9.0.0.0 13 Ahau 8 Kankin as the katun which ended in 1536, although he places Napot Xiu's death 9 years later.

given for them are the dates they assign to the opening entry of the *u kahlay katunob*, which in the writer's correlation, however, is seen to have had the Initial Series, 9.0.0.0.0 8 Ahau 13 Ceh; thus equivalents in Christian chronology for the same Maya date are given for all of them.

In conclusion, the several points which, in the writer's opinion, make the correlation suggested here more plausible than, and preferable to any of the others described, have been recapitulated below:

(1) It is based only upon general statements concerning which there is almost perfect unanimity of opinion in the original sources.

(2) It does not aim at correlation to the day, and therefore does not have to depend upon the few doubtful passages which purport to give the exact day of a certain event, the latter data being flatly contradicted by the bulk of the source material and even by statements to the contrary within themselves.

(3) It agrees better with the archæological and historical evidence, and gives rise to a more logical sequence of events than any of the other correlations described. It brings about no anachronisms, which in some of the others may be avoided only by improbable assumptions, or forced interpretations of the original sources.

(4) Finally, it develops the astonishing fact, hardly to be explained as a mere coincidence, that the opening entry in the *u kahlay katunob*, which is admittedly of a mythological character, fell on the date 9.0.0.0.0 of the Maya Era, a round number in their chronological system and the beginning of the period which witnessed their first great cultural florescence, a date which ever afterward must have been associated in the Maya mind with the beginning of their Golden Age.

APPENDIX III.

THE NOMENCLATURE OF THE COPAN MONUMENTS.

The nomenclature of the Copan monuments, followed throughout the present investigation, is that inaugurated by Maudslay in 1885, added to by the several Peabody Museum Expeditions from 1891 to 1895, and finally completed by the writer in 1910, 1912, and 1915 to 1919. Unfortunately, like anything else which has grown up piece-meal, and is the result of different minds working at different times, this nomenclature is open to serious objections, but in order to avoid confusion, as well as in recognition of Maudslay's well-merited priority, the Peabody Museum followed his names for the mounds and monuments, adding on where necessary, and the writer has thought it best to do the same.

The first nomenclature known is the numerical one under which Galindo describes the several monuments he saw in 1834. He seems to have made a number of drawings of these, but they had been removed from his report when it first came into Gates's possession in 1917 and their present whereabouts is unknown unless they are in the archives of the Société de Géographie of Paris. (See Appendix XI and also note 1, page 19.)

Five years later, in 1839, Stephens gave the monuments alphabetic designations, and this nomenclature was the first one to be published (see Stephens, 1841).

In 1877, Meye visited the ruins and secured data for a map of the Main Structure and drawings of some of the monuments, which were published in 1883 (see Schmidt, 1883). He was the first to adopt a two-fold nomenclature, generally, although not invariably, using numbers for the monuments and sculptures and letters for the principal architectural features, such as courts and mounds.

In 1885, when Maudslay undertook his principal work at Copan, the existing literature of the site was so scanty and the previous work of such a casual character that he was amply justified in starting his system of nomenclature *de novo*. He named the monuments as they are now known from A to U inclusive, and the principal mounds from 1 to 29 inclusive, his No. 29 being the pyramid at the south-east corner of the village plaza (Group 9). This series of monuments includes 12 stelæ, A, B, C, D, E, F, H, I, J, M, N, and P, and 11 altars, G₁, G₂, G₃, K, L, O, Q, R, S, T, and U. (See Maudslay, 1889-1902, vol. 1, plate 1, and vol. 1 of text, p. 15.)

When the Peabody Museum began its work in 1891, it was very wisely decided to continue Maudslay's previous nomenclature, as stated by Putnam in his editorial note to the first volume of the Museum Memoirs by Gordon:

"As Mr. Maudslay had given names, with reference by letters and figures, to the various portions of the Ruins and to prominent sculptures, the same designations are given in this report and on the accompanying plan. Additional features have been indicated by continuing in sequence the letters and figures, thus avoiding duplication and confusion."¹

In conformance with this policy, three newly discovered altars were given the letters X, Y, and Z, and then, the alphabet having been exhausted, the new stelæ found were numbered from 1 to 15 inclusive, which is the only consistent feature of the nomenclature at Copan. Maudslay's numeration of the mounds was retained,

¹Gordon, 1896, p. iii.

except for a few minor variations,¹ and the mounds lying to the south and west of the Main Structure were numbered from 30 to 56 inclusive.² (See Gordon, 1896, plate I, and the accompanying insert, which gives the corresponding legend.)

At this point the writer's nomenclature of the monuments begins. As the Peabody Museum additions to Maudslay's list include nothing for the letters V and W, the writer has assigned two small altars found by the First Peabody Museum Expedition at the Main Structure to them.

In order to preserve the single element of consistency now present in the nomenclature of the Copan monuments, *i. e.*, the designation of stelæ by numbers exclusively, broken in one place only by Altar 14, the writer has found it necessary to employ a second alphabet, designated thus, A', B', C', etc., in order to find names for newly-discovered altars, fragments of unknown nature, and other remains showing inscriptions. Indeed, these latter have now reached a total of 26, and this second alphabet is exhausted. It is recommended that subsequent discoveries of objects of this kind be given the letters of a third alphabet, thus, A'', B'', C'', etc.

The new stelæ discovered or first described by the writer have been numbered from 16 to 25 inclusive, and, barring the single exception already noted, Altar 14, Nos. 1 to 25 all refer to stelæ. It is further suggested that any new stelæ discovered hereafter should be numbered in sequence from No. 25 on, so as to preserve this single element of consistency in the Copan nomenclature.

The writer has made no addition to the nomenclature of the mounds, which remains as the Peabody Museum left it at the conclusion of its work in 1895.

Descriptions of all the foregoing monuments, under the several letters of these two alphabets and the numerical series from 1 to 25 inclusive, together with several architectural features, such as the Hieroglyphic Stairway of Mound 26, the Reviewing-stand in the Western Court (No. 12 of the Peabody Museum nomenclature), for example, will be found in Chapters II, III, and IV, with the exception of Altars 14 and O, neither of which presents an inscription. The writer has never seen the former, and except for the fact that it is somewhere along the river-bank on the north side, as shown by the Peabody Museum photograph No. 1904, its provenance is unknown. The latter is at the western end of the Court of the Hieroglyphic Stairway, just east of Mound 7. (See Maudslay, 1889-1902, plate I.)

This nomenclature, which has grown by accretion, so to speak, is at best a patch-work affair, a jumble of two alphabets and two numerical series, one of the latter referring to monuments, the other to architectural features, such as mounds, stairways, etc., but the existing literature based upon it is already so large that it has appeared inadvisable in the present investigation, and will probably so prove in any subsequent one, to change it, and the writer has followed in the footsteps of Maudslay and Gordon, the field director of the Fourth Peabody Museum Expedition, who wrote the final report, building on from the point where they left off.

In the following list of equivalents, the nomenclature followed in this investigation is given in the first column, and the Galindo, Stephens, and Meye equivalents, when there are any, are given in the second, third, and fourth columns respectively. The order of arrangement follows the sequence in which the monuments were first named, and not their chronological order as in Appendix IX.

¹Maudslay's No. 24, the Jaguar Stairway in the Eastern Court at the Main Structure, is No. 23 of the Peabody Museum nomenclature; the former's No. 23, being a stairway near the latter's No. 24. The former's No. 29, the pyramid at the southeastern corner of the village plaza, is not numbered by the Peabody Museum at all, the latter's No. 29 being a small mound and terrace south of the high pyramid, No. 16, at the Main Structure. Finally, No. 21a, not numbered by Maudslay, is between the latter's Nos. 21 and 22.

²No. 50 is just north of the high pyramid, No. 16. No. 35 does not appear on Gordon's map of the Main Structure, but on the accompanying legend he states it was a part of the same group as Nos. 30, 31, 32, 33, and 34. Presumably it is the small mound just northwest of his No. 34.

Nomenclature of the Copan Monuments.

Present nomenclature.	Galindo nomenclature.	Stephens nomenclature.	Meye nomenclature.
A (Maudslay).....	16.....	L.....	5
B ".....	14.....	N.....	
C ".....		O.....	
D ".....	24.....	P.....	4.....
E ".....			
F ".....	19.....	Q.....	3
G ₁ ".....		R ¹	
G ₂ ".....		R.....	
G ₃ ".....		R.....	
H ".....	12.....	S.....	2
I ".....		T.....	
J ".....			
K ".....			
L ".....			
M ".....		E.....	O
N ".....	Mentioned, not named.	C ²	I
O ".....			
P ".....	11.....	B.....	C
Q ".....	20.....	A.....	8
R ".....			
S ".....			
T ".....			19
U ".....			20
V (the writer).....			
W ".....			
X (the Peabody Museum) ..			
Y " " ".....			
Z " " ".....			
I " " ".....			
2 " " ".....			P(?) ³
3 " " ".....		K.....	
4 " " ".....		M ⁴	
5 " " ".....			
6 " " ".....			
7 " " ".....			Possibly mentioned.
8 " " ".....			
9 " " ".....			
10 " " ".....	Mentioned, not named.		
11 " " ".....			
12 " " ".....	Mentioned, not named.		
13 " " ".....			
14 " " ".....			
15 " " ".....			Possibly mentioned. ⁵

NOTE.—With Stela 16 commences the writer's nomenclature, running through Stela 25, and from Altars and Fragments A' to Z' inclusive. Galindo gives Altar H' the number 17, and mentions Altar I', without, however, giving it any name.

¹Stephens (1841, vol. 1, p. 152) says: "Toward the south [*i. e.*, north from his Statue T, Stela I], at a distance of fifty feet is a mass of fallen sculpture with an altar marked R on the map, and at ninety feet distance is the statue marked Q [Stela F]." It is clear from this position that under R, Stephens is referring to one of the three Altars G.

²As already stated on page 279, note 3, Stephens, through a mistake in his field-notes, incorrectly calls the figure on the north side of Stela N a separate monument, *i. e.*, his Statue D, which he locates as just south of Stela M. (See Stephens, 1841, vol. 1, map facing p. 133.)

³Meye's map is so inaccurate that it is impossible to tell whether he refers to Stela 1 or Stela 2 as his fallen monolith P.

⁴Stephens incorrectly states in the legend on his map (*op. cit.*, vol. 1, facing p. 133) that this monument, Stela 4, is standing; but he corrects this error in his text (*ibid.*, p. 157).

⁵The missing numbers and letters in the Galindo, Stephens, and Meye nomenclatures refer to general architectural features or to sculptures having no inscriptions.

APPENDIX IV.

A DESCRIPTION OF THE RUINS OF COPAN, BY DIEGO GARCIA DE PALACIO. IN 1576.¹

"Near here, on the road to the city of San Pedro, in the first town within the province of Honduras, called Copan, are certain ruins and vestiges of a great population and of superb edifices, of such skill and splendour that it appears that they could never have been built by the natives of that province. They are found on the banks of a beautiful river in an extensive and well-chosen plain, which is temperate in climate, fertile, and abounding in fish and game. Amongst the ruins are mounds which appear to have been made by the hand of man, as well as many other remarkable things.

"Before arriving at them we find the remains of thick walls, and a great eagle in stone, having on its breast a tablet a yard square, and on it certain characters which are not understood. On arriving at the ruins we find another stone in the form of a giant, which the elders amongst the Indians aver was the guardian of the sanctuary. Entering into it we find a cross of stone, three palms in height, with one of the arms broken off. Further on we come to ruins, and among them, stones sculptured with much skill; also a great statue, more than four yards in height, which resembles a bishop in his pontifical robes with a well-wrought mitre (on his head) and rings on his fingers.

"Near this is a well-built plaza or square with steps, such as writers tell us are in the Coliseum at Rome. In some places there are eighty steps, in part at least of fine stone, finished and laid with much skill.

"In this square are six great statues, three representing men, covered with mosaic work and with garters round their legs, their weapons covered with ornaments; two of the others are of women with long robes and head-dress in the Roman style. The remaining statue is of a bishop, who appears to hold in his hand a box or small coffer. They seem to have been idols, for in front of each of them is a large stone with a small basin and a channel cut in it, where they executed the victim and the blood flowed off. We found also small altars used for burning incense. In the centre of the square is a large basin of stone which appears to have been used for baptism, and in which, also, sacrifices may have been made in common. After passing this square we ascend by a great number of steps to a high place which appears to have been devoted to *mitotes* and other ceremonies; it seems to have been constructed with the greatest care, for through the whole of it there can still be found stone excellently worked. On one side of this structure is a tower or terrace, very high, and overhanging the river which flows at its base.

¹The above description of Copan is extracted from a letter written by the Licenciado Doctor Don Diego Garcia de Palacio, Oidor of the Audencia Real of Guatemala, on March 8, 1576, to Philip II, King of Spain.

Squier, in the title of his translation of this letter, gives the following subtitle, which adequately summarizes its contents: "Being a Description of the Ancient Provinces of Guazacapan, Izalco, Cuscatlan, and Chiquimula, in the Audiencia of Guatemala: with An Account of the Languages, Customs and Religion of their Aboriginal Inhabitants, and a Description of the Ruins of Copan." (Squier, 1860, p. 1.)

This letter has been published in four English editions, four Spanish editions, two French editions, and one German edition (see bibliography, p. 624), but because of its unusual importance in the present connection, being no less than the first description of Copan by an eye-witness known, it is republished here.

The region covered by Palacio's report, the four Indian provinces mentioned in Squier's subtitle, lies to the west, southwest, south, and southeast of Copan, roughly in that part of Central America where the Republics of Guatemala, Honduras, and El Salvador come together at Cerro Brujo. The translation quoted above is by Squier (1860, pp. 88-97), revised slightly by Maudslay (1889-1902, vol. 1 of text, pp. 5-7.)

"Here a large piece of the wall has fallen, exposing the entrance of two caves or passages extending under the structure, very long and narrow, and well built. I was not able to discover for what they served or why they were constructed. There is a grand stairway descending by a great number of steps to the river. Besides these things there are many others which prove that here was formerly the seat of a great power and a great population, civilised and considerably advanced in the arts, as is shown in the various figures and buildings.

"I endeavoured with all possible care to ascertain from the Indians, through the traditions derived from the ancients, what people lived here, or what they knew or had heard from their ancestors concerning them. But they had no books relating to their antiquities, nor do I believe that in all this district there is more than one, which I possess. They say that in ancient times there came from Yucatan a great lord who built these edifices, but that at the end of some years he returned to his native country, leaving them entirely deserted.

"And this is what appears most likely, for tradition says the people of Yucatan in time past conquered the provinces of Uyajal, Lacandon, Vera Paz, Chiquimula, and Copan; and it is certain that the Apay language which is spoken here is current and understood in Yucatan and the aforesaid provinces. It appears also that the design of these edifices is like that of those which the Spaniards first discovered in Yucatan and Tabasco, where there were figures of bishops and armed men and crosses. And as such things are found nowhere except in the aforesaid places, it may well be believed that the builders of all were of the same nation."

APPENDIX V.

A DESCRIPTION OF THE RUINS OF COPAN, BY FRANCISCO ANTONIO FUENTES Y GUZMAN, IN 1689.¹

CHAPTER TEN.

OF THE WAR AND CONQUEST OF COPAN.

Of the famous city of Copan there remains to-day barely a heap of ruins. At one time this opulent city was the terror, and then later the support of the entire district. Its chief, in alliance with him of Esquipulas, gave the latter many resources of every sort toward his defense against the Spaniards; these then encountered the most determined resistance in the conquest of Copan itself, to which event we now come.²

When the *Conquistadores* reached the borders of Copan they found the city filled with defenders. The garrison was a numerous army of troops from Zacapa, Sensenti, Guyxar, and Ostua, in a total of more than 30,000 men armed with swords (*macanas*), arrows, slings, and with ample food supplies (Fuentes, vol. II, chap. 2, p. 125). The site they occupied was defended to the south by the extended mountain range of Chiquimula de la Sierra, to the north by that of Gracias á Dios, to the west by a ravine running north and south and filled with the waters of the famous Copan River. This was done through a flood-gate artfully designed, which when released flooded the entire stretch of land and rendered it impassable, especially for the Spanish troops and their horses. Besides this defense, the Cacique had caused to be constructed behind that great moat a trench of heavy timbers, with loopholes for the archers. Besides this he had a stockade built around the entire camp, to make the whole impenetrable. Such was the state of things when the Spanish army approached, much disconcerted to find themselves before such formidable enemies.

¹The above description of Copan is taken from the unpublished second part of "Recordación florida, Discurso Historial, Natural, Material, Militar y Político del Reyno de Guatemala, 2ª parte. Que escribe el Capitán D^o Fran^{co} Antonio de Fuentes y Guzmán, vecino patrimonial, y Regidor de la misma muy noble y muy leal ciudad de Guatemala. Año de 1689."

This work is unquestionably the leading authority on the history of Guatemala during the sixteenth and seventeenth centuries, and in a larger sense occupies the same position in its particular province as do the histories of Sahagún and Bernal Díaz del Castillo for Mexico, and those of Landa and Cogolludo for Yucatan.

The first part only has been published (see Fuentes y Guzmán, 1882-1883). The original manuscript of the unpublished second part is in the archives of the Cabildo of Guatemala City, where are also the originals of Bernal Díaz del Castillo's equally important *Historia verdadera de la Conquista de Nueva España* and of the *Actos de Cabildo* of Guatemala City for the first 6 years (1524 to 1530), both of which latter have been published.

The second part of the Fuentes y Guzmán "Recordación florida" is a beautiful example of seventeenth century Spanish script, legibly written in a clear black ink, in an excellent state of preservation, and illustrated with several water-color drawings, including an important map (in perspective) of the city of Santiago de los Caballeros de Guatemala (now Antigua Guatemala), as it was in the latter part of the seventeenth century.

The two chapters given in full below are not taken from the Fuentes y Guzmán original, but from a paraphrase thereof written by Mariano Padilla at Guatemala City during the middle of the last century.

When Padilla quotes Fuentes y Guzmán direct, he uses a blue ink and a more vertical hand-writing, but when he is only paraphrasing he writes in black. He faithfully renders the sense of the original, but presents it in a more readable style, that of Fuentes y Guzmán being somewhat turgid.

The first extract below, Chapter X of Book IV (pp. 200-210 of the Padilla redaction, folios 133-135 of the original Fuentes y Guzmán manuscript) deals with the conquest of Copan by Hernando de Chaves in 1530, and the second, Chapter XI of Book IV (pp. 210-219 of the Padilla redaction, folios 136-139 of the original Fuentes y Guzmán manuscript), treats of the ruins of Copan. It is almost self-evident from Fuentes y Guzmán's extraordinary descriptions that he never saw the latter personally, but described them only from hearsay. The writer is indebted to Mr. William Gates for the above translation.

²See the Pipil MS., fol. 13; the Cakchiquel MS., ff. 9, 10, 17, chap. *Aruc-Chilabal*; the Quiché MS., fol. 17, chap. *Ahpopquihan*; also the original report of H. de Chaves. [This note is in the handwriting of Padilla.]

Nevertheless, the officer Andrés de Ulloa advanced to reconnoiter, with 70 Spanish footmen. The rest of the Spanish army, under command of Hernando de Chaves, and which had just completed the conquest of Esquipulas, consisted of 800 Tlascaltecas, Mexicans, and Cholultecas.

After reconnoitering the camp, Commander Chaves took up the positions which seemed best for success in his task, while protected against immediate attacks by the enemy, further increasing his army by another thousand Miteco archers.

While this went on, the Cacique Copan Cael remained with his army inside the fortifications, with abundant provisions and everything necessary to withstand a long siege; such a siege would, however, have been impossible from the smallness of the investing forces, unable to guard all points, although the cavalry scouted all the surrounding country to prevent the introduction of supplies. Hernando de Chaves therefore determined to approach the enemy lines for inspection, and to see if he might not invite the chief to peace. For this purpose he selected a number of well-armed cavalry, putting them in command of Gaspar de Polanco, a man in whom he had great confidence, and proceeded with them to the opposing lines. There through interpreters he proposed to the valiant Chief Copan Cael that he submit to the King of Spain, and also recognize the True God. The chief appeared to listen calmly to the argument of Chaves, but suddenly he broke out enraged, that neither he nor his would submit to any foreign domination, but were resolved to perish all together before enduring a foreign yoke; addressing Chaves personally, he declared that fortune would not always smile on him or be propitious. Uttering these last words, he shot an arrow (the sign of defiance among them), which was followed by a rain of these missiles, obliging Chaves and his men to retire at once.

That night Hernando de Chaves called a council of his leading captains, Juan Sánchez de Guelva, García de Aguilar, Miguel Quinteros, and Martin de la Mezquita, and it was decided to attack Copan Cael the next morning. That night the guards were doubled at the important posts.

Just at dawn the following day, and before sounding the reveille, Chaves drew up his forces. The infantry he gave coats of quilted cotton, with swords and shields; the cavalry he equipped in the best fashion to meet the darts of the enemy. Thereupon he went to overlook the field, and decided to attack on the side of the moat, while seeking the shallowest place, both for filling and for giving passage to the men.

Scarcely, however, had Chaves and his advance forces come near, when the troops of Copan Cael appeared on the opposite side, well armed, with handsome plumes, and with shields of tapir-skin, arrows, slings, and hardened spears. Then there began a severe combat between the *Copanecos* and the *Conquistadores*, which lasted nearly the whole day without other result than dead and wounded on both sides. The Indians, however, suffered much the worst through the fearful arquebus fire, which still in no degree affected their spirit; so that, defending themselves with heroic valor, they forced Chaves to retire with heavy losses among his own men. In this fight Lucás Magaña was wounded in the thigh, for which he went lame ever after.

After this disaster Hernando de Chaves did not know what to do, as every day was making his enterprise more difficult. The cavalry scouted and destroyed the neighboring fields; he himself consulted his principal officers, and constantly looked out for his resources; to ask help from Guatemala seemed humiliating; he fluctuated, in fine, in the midst of a thousand difficulties, until a chance freed him from them all.

Copan Cael held a prominent cacique confined within his palaces, for an outrage upon a woman of the court, for which offense he had ordered the prisoner's nostrils slit, and other ill treatment. He [the punished cacique,] enraged, swore to

be avenged, and, as is usual in such cases, his vengeance was far-reaching, not only upon his enemy but upon his country. He passed to the camp of Chaves, and informed him how he could take the fortress, for the moat was not of equal depth in its construction at all points, and so he showed him which were the points by which access might be gained.

With this information, on the next day Chaves marched against the enemy fortifications, which he found well garrisoned with soldiers armed with lances of copper and obsidian stone (*chay*), besides their usual weapons of darts, hardened spears, and slings; these, on seeing the Spanish troops approach, raised a terrible noise with their drums and trumpets of shells, and with shouts and frightful cries.

On arriving at a convenient distance from the moat and trench, Chaves sent forward a company of infantry under the command of Alonso de Murga, after whom followed García de Aguilar and the no less daring Miguel Quinteros. But Murga had no sooner moved against the trenches than he received a severe wound, which did not, however, cause him to desist.

The *Copanecos* resisted with admirable fortitude, so that our soldiers could not gain a foothold in the trenches; these they held like statues in their places (Fuentes, vol. II, p. 134). In this crisis Chaves, who was surveying the moat between the two forces, sent Isidro de Mayorga with some soldiers to the aid of those fighting, and then after his reconnaissance sent in the rest of the infantry and the cavalry; in these troops Gonzalo López, Diego Camargo, Bartolome Garrido, Luís Melendez, and Cristóval Marín distinguished themselves by their spirit, not to leave the field without taking the trench. In this attempt it came on that the combat became general and more bitter than at any time before. (Fuentes, vol. II, chap. 2, p. 134). All the forces of Copan Cael hurled themselves on the invaders, who in their turn seemed like immovable mountains in the moat, since they could not advance and were resolved not to yield ground. Meanwhile the Cacique Copan Cael visited all the points attacked, exhorting his men to their defense, and that they should die rather than give way to their opponents. Then action here became, one might say, individual, for every man sought an enemy to engage. (Fuentes, vol. II, p. 134.) The *Conquistadores* made various efforts to take the trench. The horsemen threw themselves to the ground and opposed their iron armor and swords of steel to the lances, masses, and arms of the enemy; but all was in vain, for the invaders fell, thrown from the trench into the moat, and this grew filled with the spoils of the dead. The besieged replaced their losses, the living taking the places of those killed, and so presenting the same front to the invaders. All was horror in this theater of death. The besiegers and the besieged fell together into the same ditch, the one and the other suffered the same fate, and fell to their own graves.

In this state of things, Juan Vásquez de Osuna, covered with mud and with the blood that now almost filled the moat, remounted his horse and like a furious tiger threw himself upon the intrenchment with the mind to be cut to pieces. The horse by his weight overthrew a great portion of the palisade, and burst into the midst of the fight and of a great multitude of Indians, who under the surprise gave him passage. There he sustained a combat as unequal as it was desperate against the multitude of the Indians, who hampered themselves with their arms, and by their very fury to kill him. Behind Vásquez de Osuna then followed 12 other horsemen, stimulated by his example, carrying terror and dismay with them among the ranks of the Indians. These the *Conquistadores* did not permit to recover themselves, but threw themselves with yet greater impetus upon the defenders of the fortress, among whom they made huge slaughter.

Meanwhile the General Copan Cael was re-enforcing his people, present in person at the points of greatest pressure by the Spaniards. When he saw at last

the tremendous losses suffered on his side, and that it was no longer possible to restore the order of battle either among his men or in the conflict itself, he withdrew in good order to his quarters, where he continued the defense with a number of valiant men who, although few, were most dexterous in the use of arms. But naught availed them; after a thousand disasters they had to yield to the force of the Spanish arms, which remained in possession of the field.

But still the valiant General Copan Caelé would not surrender, since adverse fate has no power over great men. (Fuentes, vol. II, p. 135.) He gathered again the remnants of his army within the walls of Copan, passed them in review, and retired in good order with his troops to Sitalá, a place within his seignory. There he set about reorganizing his army, reinforced by neighboring lords, in order to go back against his capital, Copan, now occupied by the troops of the conqueror.

Twice in succession Copan Caelé attacked the Spanish forces shut up within the strong walls of Copan; and twice was he repulsed with immense losses, the more grievous since they fell on his principal captains and the precious remains of his best and choicest troops.

After these repeated disasters, he consulted his prudence, his resources, and his chief counselors, resolving to send ambassadors to the Spanish commander, Hernando de Chaves. These were received and well treated by this latter, as was also the General Copan Caelé himself, who came later and received from Chaves and his men presents of different articles from the Peninsula [Spain], which Caelé in turn reciprocated by gifts of things native to the country.

But this peace did not last long. Copan Caelé, as one of the most powerful auxiliaries of Esquipulas (which had already submitted to the Spanish arms), endeavored to arouse against them some of the towns like Jupilingo, formerly a place of importance, as well as the lords of Esquipulas and Chiquimula de la Sierra themselves. He urged them that they should not remain longer under foreign domination, and that it was necessary for all to take up arms to overthrow the yoke, and fortune would not always turn her back upon them. So in fact they did; they began to disturb the Indian workers, to clear their fields and root up their crops, killing them when they got them into their hands, and even carrying away their children to sacrifice them pitilessly at the famous temple of Copan.

These hostile actions resulted in new and yet more sanguinary battles, in one of which the Spaniards lost two of their men, Fernando Encinas and Antonio de Cardona, who perished with 11 horses in the fighting outside the moat.¹

CHAPTER ELEVEN.

OF THE ANCIENT CITY OF COPAN: OF ITS RUINS; THE CIRCLE, OR CIRCUS MAXIMUS OF COPAN; THE CAVE OF TIBULCA; NOTABLE ANTIQUITIES; ITS NUMEROUS POPULATION, OF WHICH NAUGHT TO-DAY REMAINS.

This famous city was situated where to-day are only heaps of ruins; it lies between Chiquimula and the city of Gracias á Dios, though nearer to Chiquimula and close to the slopes of the sierra, where are found the famous Springs of Zaragoza. The ruins lie in a beautiful plain, in a delightful and agreeable country; but now one finds there dense thickets and woods that make the going difficult. The word Copan signifies Bridge. The city has excellent water, and is crossed by the famous river of the same name. Its population is said to have been large, as even the town lists (*padrones*) would prove, were there more copies of papers, or perhaps more archival patents, or indeed if the secretaries and officials gave more zeal and

¹This passage of Fuentes is not clear; as he does not describe this action as fiercer than the taking of Copan.—M. P.

care to the record files; but all this is to-day, as it were, with the Ministers of Hell, while if we were to give attention to these instruments, information both excellent and minute would come forth. (Fuentes, vol. II, p. 136.)

Be that as it may, Copan remained yet for a considerable time after its reduction to obedience to Spain, a place of size and population. The *Copanecos* submitted apparently; but in secret they continued to render worship to their idols, even allowing them to be seen in the buildings wherein they offered to them a service that was almost public, with offerings of perfumes and sacrifices of birds and other creatures. They even dared to place them behind the pictures in the temples, whence the Christian priests took them and gave them to the fire. (Fuentes, vol. II, p. 136.) But all they could do made no headway against these practices, nor could continued preaching draw the Indians away from all kinds of their obstinate idolatry, until God punished them by sending a pestilence, which destroyed them all, save only 7 persons who had not been guilty of idolatry.¹ (Fuentes, vol. II, *id.*) Since that time the succession failed among those who remained, so that with these dead and the rest wiped away the site remained desolate. (Fuentes, *id.*, *id.*)

At one side of these famous and gigantic ruins, in a very beautiful plain, is to be seen the Circus Maximus of Copan, intact and without injury of time. This without doubt was a most costly undertaking, of elegance and dexterity of workmanship, in the older times. Its construction seizes the attention, while many doubts are suggested by the apparel which adorns the figures of the men and women; for the first are dressed in military garments wholly in Spanish style, although the Demon could have shown the Spaniards thus arrayed to the Indians, even before the coming of the former to these shores. (Fuentes, vol. II, p. 136.) We find at this place a spacious plaza, its fine form being that of a perfect circle surrounded by a large number of simple pyramids of hewn stone, 6 or 7 yards (*varas*) in height and of corresponding bulk. These figures on the outside of the great plaza follow the order of rustic architecture, but with all the symmetry of art; on the inside, however, they are raised with great dignity and beauty upon tables that serve them as bases, and which afforded ample seating space for the great crowds which gathered there to attend upon public celebrities. But what is most remarkable of all that is there to be seen is that at the foot of these tables, and against the columns, are standing certain very perfect statues of natural size, inset in order, now a man, now a woman, and both clothed in ancient Castilian style. These are executed with such beauty and skill that even the clasps can be seen on the girdles and sword-belts of the cavaliers. Their military apparel consists of short breeches, frilled collar, breastplate, shoulder-pieces, bracelets, helmets adorned with plumes, and short swords in the belt. The strangest of all is that these figures thus standing in the inclemency of the weather have lost none of the colors, green, red, and blue, with which they were painted, which are as if but newly laid on. The same is observed in the colors of the eyes, which still keep all their brightness, as do those of the hair and beard, and the chapes, scabbards, and pommels of the swords.

Within the great circus is, as has been said, the place of sacrifice, which is of considerable height, and surrounded by many steps. Upon it is a small font resting upon a little column of very finely and perfectly cut stone, and still stained with the blood of the victims.

Not far from this, but still within the precincts of the circus, now covered with brambles, is a portico of exquisite architecture, like the entrance to some palace;

¹The author does not tell what kind of pestilence this was, nor of what they died, nor the symptoms they showed; so we can not fill this gap.—M. P.

on the sides are two men's figures, clothed *a la Española*, of well-cut and beautiful stone; these, like those of the circus, have breeches, collar, swords, cap, short cape, and bear wands of justice in their hands (Fuentes, vol. II, p. 137), so that they seem to guard the entrance to that superb edifice, perchance the residence or tribunal of justice of some cacique or principal Lord.¹

Passing within this portico, one sees two fine and lofty pyramids, on platforms and pediments in good taste and of excellent stone, from which project staples to which hangs a hammock of stone; and in this are two statues, of the two sexes, garbed in Indian style, with short upper garment, towel wrapped about the head, with lips, nostrils, and ears bored and with rings, and with plates on the knees and arms. The woman's figure wears an embroidered *huipil*, long skirts, large disks hanging from the ears, and a necklace of small disks about the neck; her hair is long and abundant, and fastened in a plait (*rodete*) on the top of the head. But most marvelous is that the hammock in which these two figures are placed moves at the lightest touch of the hand, and stays in motion for a long time. Nor is it less noteworthy that the hammock shows nowhere the least cementing, but seems formed from a single stone. So prodigious and rare a work is it that I do not believe the Romans or any other nation could have done it, and we have to believe it exclusively the work of the Indians. (Fuentes, vol. II, p. 139.)

At the entrance where this hammock is found, there is a beautiful and rich flight of steps which rises to the pavement of the circus, 10 or 12 steps from the façade to the hammock; it is of cut stone exquisitely worked, and is 33 feet *de a tercia*² in height, and more than 5 in breadth.

A short distance from the hammock we have just described is the entrance to the great Cave of La Tibulca. Hollowed in the foot of a hill, it has the form of a great temple built with much regularity and correctness, with great capacity inside, whither no one has dared to penetrate, for it is asserted that within are enchantments, and that besides, all who daringly venture within are afterwards attacked by fevers. Notwithstanding this, it was entered by Captain José de Santiago, corregidor of Chiquimula de la Sierra, Padre Maestro Fernando de Monjarras, curé of the district, his coadjutor Pablo Gallardo, some Spaniards, their servants, and other persons whose names the author does not recall. It is declared that all of them, as a result of the trip, contracted "hard and pernicious fevers, a result of the enchantment." Fuentes is not inclined to certainty upon this, but rather declares that the fevers were the result of the force of imagination and of the disorders common in those hot climates, where are various fruits like pineapples, custard-apples, bananas, agaves, oranges, and many other fruits.

The Circus Maximus of Copan resembles the Great Circus of Toledo. Tradition affirms that in the time of the Conquest it was made the deposit and sepulture of a great treasure belonging to the native lords of that country and its confines, derived from the tributes imposed on the towns in the ranges of Gracias á Dios, the Choluteca, valley of Trujillo, Olancho, Sula, and Santa Cruz, of which treasure, still in existence, we shall say more in the third part. (Fuentes, vol. II, p. 133.) The portal of this cave is adorned with a multitude of ornaments in exquisite taste and with all the beauties of art, all of stone cut and very well polished, like columns with their capitals, bases, pediments, and other artistic excellences, all in such quantity that out of these immense materials (says Fuentes, vol. II, p. 138) four cathedrals could be built, and to spare. But most admirable and compelling of attention is that all this work, so perfect and so exquisitely tooled, could have been

¹This can only be Temple 22, which Maudslay excavated in 1885. The foregoing passage would almost appear to indicate that its roof was still intact in the seventeenth century. See pages 316, 317.

²The foot *de a tercia*, or one-third of a *vara*, is about 28 cm.

done in stone so hard, and cut perpendicularly. This cave has much light on the sides, given by certain lateral windows (the author does not tell how many) opened into the rock with the same proportion and mastery shown in the rest of the edifice.

Certain Spaniards living at Gracias á Dios heard that great treasures were concealed in this cave, and came to visit it on that account; but they only found some empty chests, one of which held some sacerdotal vestments, and some altar coverings stained with the blood that had been spilled in the sacrifices and ceremonies of the pagan cult; there are also not lacking those who declare that the treasure had been removed elsewhere by enchantment. But what is certain is that more has been said about these *Guacas* or hidden treasures than has yet been verified; though it is certain that the Indians, possessing great treasures, did conceal them when the Spanish approached. But who can surely tell where?

Some will have it that the Circus Maximus was built by the Spaniards, relying on the statues garbed in that manner, saying that its building was due to the Audiencia of the Confines. But this conjecture lacks foundation, for in that time the Spaniards were involved in great disturbances and dissensions, distracting them even from most urgent affairs.

Neither could Alvarado have built it, for he was only in Chiquimula and Gracias a few days, on his way to Puerto de Caballos, besides being much occupied with his various expeditions. Still less could it have been Fernando Cortés, who was not in these parts over four months. Besides this, there were then no stone-cutters in the country save Diego Martínez de Garnica, who received 400 pesos of fine stamped gold for the bases of the columns for the cathedral. So that we have no recourse but to confess that these admirable and exquisite works were done exclusively by the Indians, skillful in very many things, and especially in stonework, as proven by their numerous stone idols.

APPENDIX VI.

THE SUPPLEMENTARY SERIES.

The Supplementary Series is a group of glyphs, usually 8 in number, which never occurs independently, but which, if present at all, always accompanies an Initial Series. Goodman was the first to call attention to this group, which he believed fixed the position of the accompanying Initial Series in some other method employed by the Maya in counting time.¹ Later he modified this view somewhat, coming to the conclusion that the Supplementary Series showed the relation of the regular chronology (*i. e.*, the Long Count) to a special chronology in each city, dating in each case from its foundation; in short, that the Supplementary Series were in the nature of *ab urbe condita* reckonings, starting from a different date in each city.²

In 1901 Bowditch suggested the name Supplementary Series for this count, on the ground that the glyphs of which it is composed always stand close to the Initial Series terminal date, the meaning of which he believed they "supplemented" in some way, and hence the name Supplementary Series by which they have since been known.³

The writer's own investigation of the Supplementary Series dates from 1907, but it was not until 1915 that he announced the meaning of the group as presenting a lunar count of some sort,⁴ and it was not until 1916, in a special paper on the subject for the Holmes Anniversary volume, that he was able to prove this by adequate mathematical evidence.⁵

It is not his purpose to attempt to cover the ground of that longer and more detailed study here, but rather to state, as briefly as may be, the principal conclusions which it brought out as to the nature of this group of glyphs, and to indicate the results of subsequent investigations along the same line, not only by himself, but also by Guthe, R. K. Morley, and Willson, which are as yet unpublished.⁶

The Supplementary Series occupies one of three positions with reference to the Initial Series: (1) immediately preceding the Initial Series terminal date; (2) immediately following the Initial Series terminal date; and (3) standing between the two parts (*i. e.*, the day and month-signs) of the Initial Series terminal date. Of the 80 Initial Series examined in 1916, 6 were found to fall in Class 1 above; 11 in Class 2, and 63 or more than 78 per cent. in Class 3, which we may therefore conclude was the normal position, particularly during the Great Period, since most of the aberrant examples in Classes 1 and 2 date from the Early or Middle Period. Thus, by their proximate position thereto, the Maya priests sought to indicate that this count was to be interpreted with and by the aid of the accompanying Initial Series in each case.

The normal Supplementary Series (best exemplified at Quirigua and Piedras Negras) is composed of 8 glyphs, though this number is not constant and may rise as high as 9 (some of the Yaxchilan texts for example) or fall as low as 4 (Stela 3, Uaxactun). The earliest example known, Stela 20 at Copan [9.1.10.0.0 (?)], has 7 glyphs, however, the only one missing being the non-numerical Glyph B.

The sequence of these 8 characters, *i. e.*, their relative positions in the series, no matter which are present, is extremely regular, the only irregular feature being that in many texts, some of them, notably Glyphs D and E, are wanting. The

¹Goodman, 1897, p. 118.

²*Ibid.*, 1905, p. 647.

³Bowditch, 1901c, pp. 5, 9, 15, 17, 19, and 24; and 1910, p. 244.

⁴Morley, 1915, p. 152, note 1.

⁵*Ibid.*, 1916.

⁶Guthe's studies on the lunar series in the Dresden Codex are now in course of publication. See Guthe, 1920.

most important glyphs are at the end of the series, as will appear presently, and for this reason they were named first. The order of reading, however, as the glyphs follow each other in the inscriptions, is as follows: G, F, E, D, C, X, B, and A, the last usually immediately preceding the month-sign of the Initial Series terminal date as noted above. The relative frequency with which these glyphs occur in the 80 texts under observation is as follows:

Glyph A in 97 per cent.	Glyph D in 50 per cent.
B in 80	E in 30
X in 93	F in 72
C in 97	G in 35

It will be seen from the foregoing tabulation that, on the basis of occurrence, Glyphs A and C are not only of equal importance, but also are of more importance than all the others. Then follows Glyph X, then Glyph B, and then the first four glyphs of the series, F, D, G, and E. These are relatively of much less importance than the last four, all except Glyph F occurring in half or less than half of the 80 texts under observation.

The glyphs of the Supplementary Series may be classified on the basis of a fundamental mathematical characteristic into two groups, as follows: (1) those which may have coefficients, including A, X, C, D, and E, and (2) those which never have coefficients, B, F, and G. Of these the second group is relatively of little importance in arriving at the meaning of this count, the gist of which seems to be expressed principally by Glyphs A, X, and C.



FIG. 78.—Glyphs G, F, and B of the Supplementary Series: *a-f*, Glyph G; *g-l*, Glyph F; *m-r*, Glyph B. The complete Supplementary Series from which these examples are taken are reproduced in Morley, 1916, plates 1-10.

Let us examine the second group first. The writer has already expressed the opinion that Glyphs G, F, and B are signs of generalized meaning, and that they in no way affect the values of the Supplementary Series in which they are found. The first, Glyph G (see figure 78, *a-f*), when the Supplementary Series is in its normal position, *i. e.*, between the two parts of the Initial Series terminal date, always follows the day-sign; and when the Supplementary Series irregularly follows the Initial Series terminal date, it follows immediately after the month-sign; that is, by its immediate proximity to the day-sign it would appear to have had something to do with the diurnal count (*i. e.*, the Initial Series) rather than with the lunar count proper; and this, moreover, is borne out by the internal evidence of the glyph itself, which, although it runs through a number of variants (see figure 78, *a-f*), both normal and head forms, is *always* to be recognized by the kin-sign which is *invariably* a part of it, and indeed is its *only* constant characteristic. The writer has already suggested the general meaning "this is the count of the days" or "here

ends the count of the days" for this glyph; and, in all probability, it is to be interpreted with the Initial Series in some such general way rather than with the Supplementary Series.


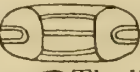





The next glyph, F (see figure 78, *g-l*), is of exactly the same general character. When present, it always follows immediately after Glyph G, and like Glyph G never has a coefficient. Again, although it runs through a number of variants, both normal and head forms, it is always to be recognized by the same peculiar superfix divided into three parts, the right being crescentic in shape; the middle, composed of two or three small circles; and the left a leaf-shape (see figure 78, *g-l*). This element is the only constant characteristic of this glyph



FIG. 79.—Glyphs A, C, D, E, and X of the Supplementary Series: *a-h*, Glyph A; *i-p*, Glyph C; *q-v*, Glyph D; *w-b'*, Glyph E; *c'-j'*, Glyph X. The complete Supplementary Series from which these examples are taken are reproduced in Morley, 1916, plates 1-10.

and gives it its meaning, for which the writer has suggested the following: "this is the count of the moons" or "here begins the lunar count." The juxtaposition of Glyphs G and F, their relative positions with reference to the Initial and Supplementary Series, and finally the fact that the former is always characterized by a kin-sign, has led the writer to conclude that they are general signs, Glyph G standing in the same relation to the Initial Series that Glyph F does to the Supplementary Series.

Passing over Glyphs E, D, C, and X for the present, we reach Glyph B (see figure 78, *m-r*), the last of the non-numerical group and the next to last of the whole series. This glyph, although it occurs in both head-variant and normal

forms, has three extremely constant elements: (1) the elbow element with crossed bands at the angle;  (2) the small oval element always  to be found somewhere within the angle formed by the preceding; and (3) an ending prefix or  superfix, which takes several forms.  The little animal head  usually found in the angle of the elbow element appears in at least one instance (Stela 11 at Piedras Negras) emerging from Glyph A,  i.e., the moon-sign proper,  and on the basis of this association, as well as the fact that it always has an ending-sign, and finally because of its position, always immediately preceding Glyph A, the writer has suggested for it the general meaning: "here ends the count of the moon" or "next follows the current lunar month." This concludes the non-numerical signs, which, as already mentioned, doubtless had little real effect upon the meanings of the Supplementary Series.

Turning next to the numerical glyphs, the most important of these is probably Glyph A, the last sign of the Supplementary Series (see figure 79, *a-h*), and the key by means of which the general meaning of the whole count was first worked out. To begin with, the glyph itself, which is the moon-sign, is very constant in its normal form (figure 79, *a-e*) as well as in its head variant (figure 79, *f*); in fact, there is only one other variant known (figure 79, *g* and *h*), and that occurs but thrice.¹

The most constant characteristic about this glyph, however, and the one which gave the first clue as to its meaning, is its coefficient, which is *always* 9 (figure 79, *a, b, e*, and *h*) or 10 (figure 79, *c, d, f*, and *g*), and which is always attached to the right of the glyph (figure 79, *b, d, e*, and *f*) or at the bottom (figure 79, *a, c, g*, and *h*); that is, never at the left or above, as in the case of *all other* numerical coefficients.²

Förstemann had shown long before, in his study of the Dresden Codex, that the moon-sign there has a numerical value of 20, and in 1915 Professor R. W. Willson, of Harvard University, suggested to the writer that Glyph A of the Supplementary Series, which was nothing more than the moon-glyph with a coefficient of 9 or 10, was a sign for the 29 and 30 day month respectively, the nearest approximations possible in terms of whole days of the exact length of a lunation. He further suggested that the close resemblance of the moon element in Glyph A to those forms so often found in the Dresden Codex, where the moon-glyph is used as a numerical sign for 20, when taken into consideration with these coefficients of 9 or 10, is of itself convincing proof that the Maya once used a lunar calendar consisting of alternate months of 29 and 30 days—such an arrangement as is in use in the Mohammedan calendar. And in a recent letter he refers the writer to a similar usage in the Babylonian lunar calendar in which the months were labeled 1 or 30 accordingly as they contained 29 or 30 days.³ It then became apparent why these coefficients of 9 and 10 were attached to the right of or below the moon-sign, instead of in the usual positions at the left or above. This was done in order to indicate thereby that they were *added* to the moon-glyph, giving totals of 29 (*i. e.*, $20+9$) and 30 (*i. e.*, $20+10$) instead of being multiplied by it, giving totals of 180 (*i. e.*, 20×9) and 200 (20×10) as Maya coefficients do when they stand in the regular positions to the left or above.

The Maya had no fractions, and the only way they could keep the lunations correct in terms of whole days was to have some months composed of 29 days and

¹ (1) Stela A, Copan; (2) Stela N, Copan; and (3) the Hieroglyphic Stairway at Naranjo.

² There are only four exceptions to this known, the last three texts at Quirigua, Stela I, Stela K, and Structure 1, 9.18.10.0.0, 9.18.15.0.0, and 9.19.0.0.0 respectively, and on the west jamb of the north doorway of Temple 11 here at Copan: 9.16.12.5.17. When the first three were inscribed, however, the purpose for which this differentiation of position had been devised was so well known that no mistake in meaning could arise about them, and their coefficients were allowed to go back to the regular positions for other coefficients. And for the explanation of the irregularity of the last, see pages 311-313.

³ See Ginzel, 1906-1914, vol. I, p. 124.

others of 30 days; and on the basis of this meaning the writer suggested that Glyph A declared the *kind* of month (*i. e.*, whether composed of 29 or 30 days, a condition shown by Glyph A itself in each case), *in which the accompanying Initial Series date fell*, a hypothesis which has since become generally accepted. For example, Glyph A on Stela F at Quirigua has a coefficient of 10, and the whole glyph, therefore, is to be interpreted as indicating that the corresponding Initial Series terminal date, 9.16.10.0.0 1 Ahau 3 Zip, fell in a 30-day month.

The decipherment of this glyph at once established the general meaning of the Supplementary Series as a lunar count of some sort, which is further proved by the fact that no less than 6 of the 8 glyphs of which it is composed, in fact all except Glyphs G and F, at one time or another, and some of them all the time, have the moon-glyph as an essential part.

Scarcely less important than the preceding sign is Glyph C (see figure 79, *i-p*), the fifth sign from the left, which occurs as frequently as Glyph A (in 97 per cent. of the texts under observation) and which, together with Glyphs A and X, are the three most important signs in the Supplementary Series.

Glyph C, like Glyph A, is again constant, being composed of four elements which are always present in one form or another and a fifth, an ending prefix or superfix, which, since the Maya themselves omitted it in about two-thirds of the texts under observation, we may conclude was not essential to the meaning of the sign. These elements are:

1. A hand, always present and never changing in form.
2. A variant of the moon-sign, always present and never changing in form.
3. A bar-and-dot coefficient, always either 2, 3, 4, 5, 6, or in some cases no coefficient at all, which, since 1 itself is never found, is probably to be interpreted as the equivalent of 1 in this glyph, as in algebra $1a$ and a are the same.
4. A human head, always present, though varying considerably, passing through a number of different types.
5. The ending prefix or superfix alluded to above, wanting in about two-thirds of the examples.

The first two are so constant that they may be passed with brief comment. The hand in the Maya inscriptions has always been found to mean "end of," "close of," and hence even "zero." As attached to a variant of the moon-sign, therefore, it might perhaps indicate that a lunation or at least some longer lunar period had come to an end, or that possibly a whole month was in question.

The third element, the bar-and-dot coefficients, of 2, 3, 4, 5, 6, and no coefficient at all, which hereafter will be called 1, is, on the contrary, probably the most important part of this glyph. R. K. Morley was the first to explain this coefficient as indicating in each case the position of the month declared by Glyph A, in a higher lunar period composed sometimes of 5 and sometimes of 6 of these 29 and 30 day lunar months. In other words, that these coefficients were ordinary positional numerals, like any regular Maya coefficients, those of the katun for example, and that they fixed the positions of the current month in a higher lunar period, no coefficient corresponding to the first or opening position.

His basis for this explanation is pages 51 to 58 of the Dresden Codex, where there are recorded 405 successive lunations, arranged in a series of groups, some of which contain 5 lunations each, but more 6 lunations each. The individual lunations vary from 29 to 30 days in length, but these are so cleverly combined in each group, some having 177 days (*i. e.*, $3 \times 29 + 3 \times 30$), others having 178 days (*i. e.*, $2 \times 29 + 4 \times 30$), and still others 148 days (*i. e.*, $2 \times 29 + 3 \times 30$), that at no single group-ending in the entire period covered, nearly 33 years, is the cumulative error as much as a single day out with the total number of days in the corresponding total of lunar revolutions.

This peculiar grouping of the 29 and 30 day lunar months on pages 51 to 58 of the Dresden Codex into higher lunar periods of never more than 6 months and never less than 5 immediately suggested that Glyph C of the Supplementary Series, which was known to treat of the moon, and the coefficient of which was never found to be higher than 6, was in fact a positional indicator in the same sort of a lunar group, the bar-and-dot coefficients from 1 to 6 indicating the position of Glyph A in a 5 or 6 month lunar period, an explanation which has since met with general acceptance.

But this did not explain why the Maya, either in the lunar calendar on pages 51 to 58 of the Dresden Codex, or in Glyph C of the Supplementary Series, should have grouped the lunations into larger periods of 5 and 6 lunations each. The first to suggest the true explanation of this characteristic, or at least so far as pages 51 to 58 are concerned, was Meinshausen, who in 1913 showed that the totals of days on pages 51 to 58 of the Dresden Codex very closely agree with the intervals between eclipses of the sun and moon:

"It will occur to everyone who observed the eclipse of the sun last summer (1912) what an impression such a phenomenon of nature makes; therefore the fact will be easily understood that among the ancient civilized peoples who were much occupied with astronomy there were none which has failed to leave conspicuous records of such events. When, therefore, starting from this fact, I searched the Dresden Codex for eclipses of the sun and moon, I was nevertheless not a little surprised instead of the expected slight and brief remarks to find, besides others, a long chapter that seemed to me to deal with such phenomena. A careful study of the periodicity of the eclipses of the sun and moon soon brought me to the conclusion that my assumption, in spite of the contrary explanation of Professor Förstemann of this part of the manuscript, was wholly correct. The following comparisons of the periods between eclipses of the sun on the one hand and the moon on the other with the numbers of the Codex leaves no doubt that the latter actually arose from the observation of such appearances.

"Eclipses of the moon ordinarily recur for the whole earth, as appears from the following table, after 177 days, but occasionally after 502 days. If 502 be divided by 177 the remainder is 148. The Codex shows exactly these numbers. The agreement is, moreover, of such sort that a coincidence appears to be excluded."¹

Meinshausen then gives a series of lunar eclipses which took place in the years 1778 to 1811 (first table, page 557), and a series of solar eclipses which took place in the years 1775 to 1808 (second table, page 557), as recorded in the Berlin Astronomical Almanacs. The first three columns in each table describe the date of the eclipse, viz, (day) 20, (month) 7, (year) 1778. The fourth column shows the differences in days between two successive eclipses; the fifth column, the total number of days from the beginning of the series to each succeeding eclipse; and the last column, the numbers in the Dresden Codex. When the latter disagree with the corresponding totals in the fifth column by more than 1 day, they are inclosed in parentheses.

In the first table, which shows the lunar eclipses, out of a total of 51 numbers quoted from the Dresden Codex, 23 or 45 per cent. agree exactly; 12 or 24 per cent. are 1 day off; 2 or 4 per cent. are 2 days off; and only 14 or 27 per cent. are 28, 29, and 30 days off. Meinshausen suggests that the reason there are any disagreements at all between the actual eclipse periods and the manuscript is due to the fact that not all the eclipses are visible at any one point on the earth's surface, and consequently that the remainder of 148 in the Codex was always placed arbitrarily immediately before an observed eclipse.

The agreements in the second table, that showing solar eclipses, are even more significant. Here, of the 69 numbers quoted from the Dresden Codex, 28 or 40 per cent. agree exactly; 26 or 38 per cent. are 1 day off; 2 or 3 per cent. are 2 days off; and only 13 or 19 per cent. are 28, 29, or 30 days off. These agreements are again so

¹Meinshausen, 1913, p. 221.



Table of Lunar and Solar Eclipses.

ECLIPSES OF THE MOON.						ECLIPSES OF THE SUN.					
Christian date.			Differ- ences.	Totals.	Codex Nos.	Christian date.			Differ- ences.	Totals.	Codex Nos.
Day.	Mo.	Yr.				Day.	Mo.	Yr.			
20	7	1778	502	502	502	26	8	1775	148		
4	12	1778	177	679	679	21	1	1776	29	177	177
30	5	1779	177	856	856	19	2	1776	147		
23	11	1779	177	1033	1033	15	7	1776	30	177	354
18	5	1780	177	1211	1211	14	8	1776	148		502
12	11	1780	502	1713	(1742)	9	1	1777	177		679
29	3	1782	176	1889	(1919)	5	7	1777	178		856
21	9	1782	178	2067	(2096)	30	12	1777	176		1033
18	3	1783	177	2244	2244	24	6	1778	178		1211
11	9	1783	178	2422	2422	19	12	1778	148		
7	3	1784	176	2598	2598	16	5	1779	29	177	1388
30	8	1784	502	3100	(3130)	14	6	1779	177		1565
14	1	1786	178	3278	3278	8	12	1779	148		1713
11	7	1786	177	3455	3455	4	5	1780	176		(1742)
4	1	1787	177	3632	3632	27	10	1780	178		1889
30	6	1787	177	3809	3809	23	4	1781	178		2067
24	12	1787	502	4311	(4340)	17	10	1781	177		2244
9	5	1789	178	4489	4488	12	4	1782	177		2422
3	11	1789	177	4666	4666	6	10	1782	177		2598
29	4	1790	177	4843	4842	3	3	1783	148		
23	10	1790	177	5020	5020	1	4	1783	29	177	2775
18	4	1791	177	5197	5197	27	8	1783	148		
12	10	1791	502	5699	(5728)	26	9	1783	30	178	2953
25	2	1793	177	5876	(5905)	20	2	1784	147		3100
21	8	1793	177	6053	(6082)	16	8	1784	178		3278
14	2	1794	178	6231	6230	9	2	1785	177		3455
11	8	1794	177	6408	6408	5	8	1785	177		3632
4	2	1795	177	6585	6585	30	1	1786	178		3810
31	7	1795	502	7087	(7116)	25	7	1786	176		3986
14	12	1796	177	7264	7264	20	12	1786	148		
9	6	1797	177	7441	7441	19	1	1787	30	178	4164
3	12	1797	177	7618	7618	15	6	1787	147		4311
29	5	1798	178	7796	7795	9	12	1787	177		(4340)
23	11	1798	502	8298	(8326)	4	6	1788	178		4488
9	4	1800	176	8474	8474	27	11	1788	176		4666
2	10	1800	179	8653	(8651)	24	5	1789	178		4842
30	3	1801	176	8829	8828	17	11	1789	177		5020
22	9	1801	178	9007	9006	14	4	1790	148		5197
19	3	1802	176	9183	9183	14	5	1790	30	178	5375
11	9	1802	502	9685	(9714)	8	10	1790	147		
26	1	1804	178	9863	(9891)	6	11	1790	29	176	5551
22	7	1804	177	10040	10039	3	4	1791	148		5699
15	1	1805	177	10217	10216	27	9	1791	177		(5728)
11	7	1805	177	10394	10394	22	3	1792	177		5876
4	1	1806	502	10896	(10925)	16	9	1792	178		(5905)
21	5	1807	177	11073	(11102)	12	3	1793	177		6053
14	11	1807	178	11251	11250	5	9	1793	178		(6082)
10	5	1808	177	11428	11427	31	1	1794	177		6231
3	11	1808	177	11605	11604	1	3	1794	148		6408
29	4	1809	177	11782	11781	27	7	1794	29	177	6585
23	10	1809	503	(11960)	(11958)	25	8	1794	148		6762
10	3	1811				20	1	1795	29	177	6939
						16	7	1795	148		6939
						10	1	1796	177		7087
						5	7	1796	178		(7116)
						29	12	1796	177		7264
						24	6	1797	178		7442
						18	12	1797	177		7618
						15	5	1798	177		7796
						8	11	1798	177		7973
						4	5	1799	177		8150
						28	10	1799	148		8149
						23	4	1800	177		8298
						18	10	1800	178		(8326)
						14	3	1801	147		8475
						13	4	1801	30	177	8652
						8	9	1801	148		8651
						7	10	1801	29	177	8829
						4	3	1802	148		9006
						28	8	1802	177		9184
						21	2	1803	177		9361
						17	8	1803	177		9538
						11	2	1804	178		9686
						5	8	1804	176		(9714)
						1	1	1805	149		9863
						30	1	1805	29	178	10040
						27	6	1805	148		10217
						26	7	1805	29	177	10395
						21	12	1805	148		10571
						16	6	1806	177		10749
						10	12	1806	178		10926
						4	6	1807	176		11074
						29	11	1807	148		(11102)
						25	4	1808	30	178	11251
						25	5	1808	148		11250

striking as to make it practically certain that pages 51 to 58 of the Dresden Codex are an eclipse calendar, possibly of the sun, possibly of the moon, or possibly even of both.

Through independent investigation Willson came to a similar conclusion about these same pages of the Dresden manuscript and in 1916 told the writer he believed them to be tables of possible solar eclipses;¹ and during that and the following year Dr. Carl Guthe made the lunar count, especially as presented in these pages of the Dresden Codex and in the Supplementary Series at Quirigua, the subject of an exhaustive investigation in connection with work for the doctorate at Harvard University.² He has also assured the writer that these pages of the Dresden manuscript can have no other interpretation, although he disagrees with the details of Meinshausen's conclusions.

Returning to the Supplementary Series again, the restriction of the coefficients of Glyph C to the numerals 1, 2, 3, 4, 5, and 6 only, can hardly be interpreted under the circumstances as indicating other than a similar condition, and it therefore appears probable that Glyph C is in some way connected with the eclipse phenomenon, Glyph A showing the number of days in the month, whether 29 or 30, in which the accompanying Initial Series falls, and the coefficient of Glyph C, showing the position of that month in a group of 5 or 6 months, the length of which was determined in some way by the eclipse phenomenon.

There remains to be explained one more important element of Glyph C, namely, No. 4, on page 555, the human heads of varying types. When the writer first approached this problem in 1907 he noticed that this head element is occasionally replaced by another element which looks like an eye,  and which is the name-glyph of God M.³ Subsequently, however, through the resemblance of these heads to head-variant numerals, he  came to regard them as another set of numerical coefficients, of which the sign above was the zero, and he thus identified this element in 1916.⁴ These heads indubitably resemble the head-variant numerals, indeed are identical with them, as reference to figure 79 will show, *j* and *p* being clearly the heads for 10, *k* the head for 7, *m* the head for 4, *l* the head for 1 or 8, and *n* the head for 6, the last being unmistakable. Note the cross element in the eye.

These resemblances are so close as to indicate the identity of these heads with those of the numbers given, but the correct explanation thereof now appears to the writer to be more in the line of his first identification of them as signs for specific gods than that they are numerical coefficients.

It has long been suspected that certain numbers were associated with the different deities of the Maya Pantheon, 10 with the God of Death (A of the Schellhas classification); either 1 or 8 with the Maize god (God E); 4 with the old god, possibly Itzamna (God D), 5 with the god of the 5 closing days of the year, Uayeb (God N); and 7 with the god with the cruller-like ornament over his nose (perhaps God K).

It now appears to the writer, on the basis of these associations of specific head-variant numerals with specific deities, that this element of Glyph C is to be explained not as a series of numbers, but as a series of *names of deities who presided over the corresponding periods*, a case in point being the eye element above (see figure 79, *i* and *o*), which is surely the sign for God M.

¹See Morley, 1916, p. 394.

²The results of this investigation are in course of publication by the Peabody Museum as volume 6, No. 2, in its series of archaeological and ethnological papers. See Guthe, 1920.

³Compare Schellhas, 1904, figs. 45 and 46.

⁴See Morley, 1916, pp. 380, 381.

As yet what period these deities presided over is doubtful. Indeed, before suggesting what appears to be the most likely period in this connection from the limited evidence available, it is necessary to describe first the closest parallel afforded by Aztec mythology to the Maya practice, which we are supposing may be indicated by these head-elements in Glyph C, namely, the so-called Nine Lords of the Night of the Aztec pantheon.

Bowditch has shown that, as portrayed in the Codex Borbonicus, the Nine Lords of the Night are there associated with a series of tonalamatls or 260-day periods, each Lord presiding in turn over a day thereof, the tenth day having the same Lord as the first day, the eleventh day the same Lord as the second day, and so on, each sequence being continuous, with but one exception. Since 9 and 260 contain no common factors, and since the latter is divisible by the former with a remainder of 8, it follows that if the Nine Lords of the Night were applied to the days of the succeeding tonalamatls without a break in either series, each tonalamatl would begin with a different lord, and not until the tenth tonalamatl came around would the First Lord, Xiuhtecuhtli, coincide with the beginning day of a tonalamatl again. That is, all of the other eight lords would preside over the beginning days of tonalamatls before the First Lord would occupy that position again. As a matter of fact this is *not the case*, since the First Lord, Xiuhtecuhtli always presided over the first day of *all* tonalamatls, and this could only be achieved by dropping the Ninth Lord, Quiahuitl, at the end of each tonalamatl, and having the Eighth Lord, Tepeyollotli, who always presided over the two hundred and sixtieth day, be followed by the First Lord in this one position alone. Bowditch clearly sums up the situation in the Codex Borbonicus as follows:

"Apparently, therefore, the Tonalamatls succeeded each other, continuously lapping over from one year [365-day year] to the other, while the Lords of the Night accompanied the Tonalamatls and lost one of their number [always the Ninth Lord, Quiahuitl] with the ending of each Tonalamatl."¹

Let us next apply this general idea, namely that of a fixed series of deities, (not necessarily limited to 9 in number, however) presiding over a series of consecutive time-periods (not necessarily the day), to this element of Glyph C, and see how it agrees with the data recorded.

In the writer's study of the Supplementary Series in 1916 he found 11 pairs (one a triplet) of Initial Series, the members of each pair of which record the same date, as follows:

Pair 1. Stela 2, Copan	9.10.15.0.0	Pair 6. Stela 24, Naranjo	9.12.10.5.12
Stela 12, Copan	9.10.15.0.0	Stela 29, Naranjo	9.12.10.5.12
Pair 2. Stela 13, Copan	9.11.0.0.0	Pair 7. Stela 7, La Honradez	9.17.0.0.0
Stela 3, Copan	9.11.0.0.0	Stela E, Quirigua	9.17.0.0.0
Pair 3. Stela 1, Piedras Negras	9.12.2.0.16	Pair 8. Stela 13, Naranjo	9.17.10.0.0
Stela 3, Piedras Negras	9.12.2.0.16	Zoöph. B, Quirigua	9.17.10.0.0
Pair 4. Stela 11, Yaxchilan	9.16.1.0.0	Pair 9. Stela 1, Ixkun	9.18.0.0.0
Stela 11, Yaxchilan	9.16.1.0.0	Zoöph. O, Quirigua	9.18.0.0.0
Trip. 5. Stela 1, Yaxchilan	9.16.10.0.0	Pair 10. Stela 8, Naranjo	9.18.10.0.0
Stela F, Quirigua	9.16.10.0.0	Stela I, Quirigua	9.18.10.0.0
Stela N, Copan	9.16.10.0.0	Pair 11. Stela J, Quirigua	9.16.5.0.0
		Stela M, Copan	9.16.5.0.0

Now, if these deities, presided over the successive days of the Maya chronological era, under the assumption that the head-element of Glyph C declares which deity it was that presided over the day recorded by the accompanying Initial Series,

¹Bowditch, 1900, p. 152.

we should find the *same head-elements* in Glyph C of the Supplementary Series in each of the above pairs, because each pair records the same day.

In these 11 pairs, however, the head-elements of Glyph C are effaced or wanting in one member of 4 different pairs (Nos. 1, 2, 7, and 9 above), which leaves but 7 upon which we can base our comparisons.

In figure 80 the head-elements in Glyph C in these seven pairs are shown, the two in Pair 3 in *a* and *b*, the two in Pair 4 in *c* and *d*, the three in Triplet 5 in *e*, *f*, and *g*, the two in Pair 6, in *h* and *i*, the two in Pair 8 in *j* and *k*, the two in Pair 10 in *l* and *m*, and the two in Pair 11 in *n* and *o*. Of these, the heads of 5 pairs agree perfectly, Pair 10 from Naranjo and Quirigua (figure 80, *l* and *m*) both having the sign for God M; Pair 3, both from Piedras Negras (figure 80, *a* and *b*), both having the head of God A, Pair 4 both from the same monument, Stela 11 at Yaxchilan (figure 80, *c* and *d*) both having the head of a youthful deity, probably God E, Pair 11 from Quirigua and Copan (figure 80, *n* and *o*) both having the head of God A again, Pair 8, from Naranjo and Quirigua (figure 80, *j* and *k*), both having the head of God A again.

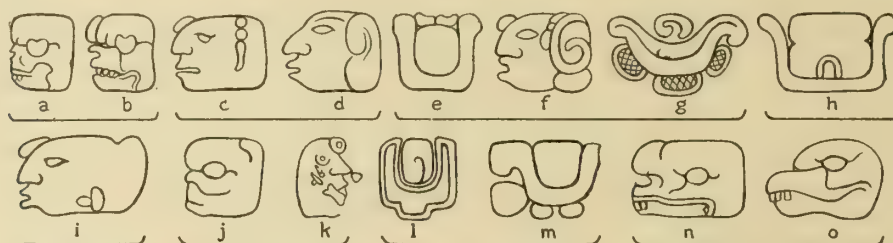


FIG. 80.—Head-elements, or name-glyphs of deities in Glyphs C of Supplementary Series, which accompany the same Initial Series: *a*, *b*, Piedras Negras, Stelæ 1 and 3 (9.12.2.0.16); *c*, *d*, Yaxchilan, Stela 11 (9.16.1.0.0); *e*, *f*, *g*, Yaxchilan, Stela 1, Quirigua, Stela F Copan, Stela N (9.16.10.0.0); *h*, *i*, Naranjo, Stelæ 24 and 29 (9.12.10.5.12); *j*, *k*, Naranjo, Stela 13, Quirigua, Zoömorph B (9.17.10.0.0); *l*, *m*, Naranjo, Stela 8, Quirigua, Stela I (9.18.10.0.0); *n*, *o*, Quirigua, Stela J, Copan, Stela M (9.16.5.0.0).

The other two, Pair 6 and Triplet 5, show a disagreement in this element. The first member of Pair 6, Stela 24, at Naranjo has the sign of God M (figure 80, *h*) and the second member, Stela 29 at Naranjo (figure 80, *i*), the head of God E, a clear contradiction.

Triplet 6 has two of its three members in agreement, Stela 1 at Yaxchilan and Stela N at Copan both having the sign of God M again (figure 80, *e* and *g*); the third member, however, Stela F at Quirigua (figure 80, *f*) is aberrant, having the head of God E.

The disagreements in the last two cases are so positive that in spite of the satisfactory agreements in the other five, it is probable that the day could not have been the period presided over by these deities, and that in this respect at least, they differ from the Aztec Nine Lords of the Night.

Another possibility is that this deity in Glyph C may have presided over the corresponding lunar month, although, if so, the series cut across the 5- or 6-month lunar periods, because we find different deity heads associated with the same bar-and-dot coefficients, as for example in figure 79, *j* and *k*, where the bar-and-dot coefficients are both 2, but the head in *j* is the head of God A, and that in *k* is the head of the God with the cruller ornament, possibly God K; or again in figure 79, *n* and *o*, where the bar-and-dot coefficients are both 5, but the head in *n* is that of an unknown god (head-variant for the number 6), and the corresponding element in *o*, the sign for God M.

Finally, it is even possible that these deities presided over still longer periods like the lunar groups of 177, 178, or 148 days. In this connection, R. K. Morley has recently called the writer's attention to a significant characteristic of the Glyphs C in Pair 6 and Triplet 5, the two aberrant groups above. The coefficients of Glyph C in Pair 6 are 1 (Naranjo, Stela 24) and 6 (Naranjo, Stela 29), and in Triplet 5 they are again 1 (Yaxchilan, Stela 1 and Copan, Stela N) and 6 (Quirigua, Stela F). In other words, where the heads in Glyph C differ for Supplementary Series accompanying the same Initial Series, the corresponding coefficients—in the only five examples available for comparison—are *either 1 or 6*. The most obvious explanation of this phenomenon is that these differing deities presided over the larger lunar periods of which the coefficients of Glyph C denote the subdivisions, that is, over the periods of 177, 178, or 148 days, if we may follow the parallel afforded by pages 51 to 58 of the Dresden Codex.

This explains why these deities could differ, and yet belong to Supplementary Series accompanying the same Initial Series, since under this explanation the head of God E in Pair 6 (Naranjo, Stela 29) with its coefficient of 6 indicates that God E was the deity who presided over the lunar period of 6 months *ending* on the day 9.12.10.5.12 (Initial Series of Stela 29), and the sign of God M (Naranjo, Stela 24) with its coefficient of 1 indicates that God M was the deity who would preside over the *following* lunar period of 5 or 6 months, which *began* on the same day.

Again, in the case of Triplet 6, the head of God E (Quirigua, Stela F) with its coefficient of 6 would indicate that God E presided over the lunar period of 6 months *ending* on the day 9.16.10.0.0 (Initial Series of Stela F), and the signs for God M (Yaxchilan, Stela 1, and Copan, Stela N) with their coefficients of 1 would indicate that God M presided over the *following* lunar period of 5 or 6 months, which *began* on the same day.

These two groups, comprising five examples in all, are, of course, too insufficient to establish this point, but Morley's hypothesis here, that the deities shown in Glyph C presided over the longer lunar periods of 177, 178, or 148 days as the case might be, satisfactorily explains both the agreements and the disagreements observed in this element of Glyph C, and fits the archæological evidence better than the day or lunar month hypotheses. On the basis of this assumption the deities indicated by this element in Glyph C might possibly be called Eclipse Gods, since the eclipse phenomenon would appear to be associated with these 5-month and 6-month lunar groups.

It would be premature to accept this hypothesis as proved, but the important fact in connection with this element now is that in it we probably have the sign of the deity who presided over the period in which the accompanying Initial Series date fell, hardly the day, or the lunar month, but more probably one of these larger lunar groups, or even some as yet unknown period.

Returning to the Supplementary Series, the next sign, Glyph D (see figure 79, *q-v*), is the fourth from the left and immediately precedes Glyph C. It only occurs in about half of the texts under observation and therefore could hardly have been essential to the meaning of the count.

When present, however, it is extremely constant, being composed of 4 elements, as follows:

1. A hand always present and never changing in form.
2. A variant of the moon-sign, always present and never changing in form. (Note that these two elements of Glyph D are identical with the corresponding elements in Glyph C.)
3. A bar-and-dot coefficient varying from 2 to 19 inclusive and no coefficient at all, which is probably to be interpreted as 1.
4. A subfix, probably unessential.

Since the first two elements are identical with two of the elements of Glyph C, and because, when present, Glyph D always immediately precedes Glyph C, it seems reasonable to infer that the two characters are closely connected in meaning.

R. K. Morley has pointed out by far the most important characteristic of this glyph, namely, that when Glyphs E and D both occur in the same text, as is frequently the case, Glyph D *never* has a coefficient and Glyph E always has one. The latter may be only 1, it is true, as on Stela 8 at Naranjo, but wherever Glyphs E and D are *both* present the latter *never* has a coefficient.

This characteristic very strongly suggests that Glyph D contains within itself the data for Glyph E also, that is, that Glyph D could be expanded into Glyphs D and E at will by attaching its coefficient to Glyph E, and either omitting Glyph D altogether or recording it without a coefficient. This may possibly explain why Glyph E is present only in 30 per cent. of the texts under observation. When it was desired to record them both, however, perhaps to fill in a space on the monument, then Glyph D was recorded without a coefficient, its coefficient going over to Glyph E. In fact, whatever these two glyphs may mean, it is evident that they are very closely connected, if not indeed actually synonyms, since we get all three combinations of them possible: (1) Glyph D by itself; (2) Glyph E by itself; and (3) both together; but what we *never* get is D *with a coefficient* when E is *present*.

Glyph E (figure 79, *w-b'*), as the writer has already shown,¹ is probably reducible to a number of days. It is composed of but two constant elements, the moon-sign (the same variant as in Glyph A) and a series of numerical coefficients ranging from 1 to 19. Since the variant of the moon-sign is the same as in Glyph A, it must have a numerical value of 20, and since the coefficients attached to it are always either to the *left* or *above* (see figure 79, *w-b'*) they are doubtless to be regarded as multipliers, so that the glyph can stand for as low as 20 days (*i. e.*, 1×20) or as high as 380 days (*i. e.*, 19×20). Furthermore, at Yaxchilan it is sometimes modified by the same superfix as the cycle-sign is in the great-cycle glyph, that is to say, by an element that multiplies it by 20, making it 400.² And in one case at least (Stela 24 at Naranjo) this is modified by a bar-and-dot coefficient on its left as high as 18, making it equal to 7,200 days (*i. e.*, 18×400) under this assumption, and with 7,600 days (*i. e.*, 19×400) as its possible maximum.

However probable it now appears that Glyphs D and E are synonymous and that both may be reduced to a number of days, we are yet entirely in the dark as to what determined the number of days they appear to record. Any suggestion that might be brought forward at this time would be purely speculative, but in closing the presentation of these two glyphs the writer wishes to note that he regards it as highly probable that this number has something to do with the accompanying Initial Series in each case, possibly indicating the distance therefrom, either before or after some specific observed eclipse phenomenon.

We come next to the last glyph of the Supplementary Series, Glyph X (see figure 79, *c'-j'*) which is the sixth character from the left or the third from the right. This sign is the least understood of all the characters of the Supplementary Series, is the most variable of all (hence its name Glyph X), and in importance ranks with Glyphs A and C. In the other glyphs of this count we have been able to establish essential elements or characteristics which remain constant, no matter through what changes the accompanying coefficients may pass. But in Glyph X for the first time we reach a glyph which possesses no element common to all of its examples, but on the contrary which passes through a number of changes. Happily it appears possible to classify these, at least roughly. The commonest element in

¹Morley, 1916, pp. 384-387.

²*Ibid*, 1915, pp. 117-119.

Glyph X is a pair of crossed human legs without the upper part of the body (see figure 79, *c'-e'*). In most cases these are combined with the moon-sign (figure 79, *c'* and *d'*), but in a few cases with heads (figure 79, *e'*) or other forms. This pair of legs occurs in 11 out of the 61 cases where Glyph X is recognizable, or 18 per cent.

The next commonest form of Glyph X is the head of God C, sometimes found with a coefficient of 0 (figure 79, *f'*), sometimes with a coefficient of 1 (figure 79, *g'*), sometimes with a coefficient of 3 (figure 79, *h'*), and sometimes with no coefficient at all. More rarely still we find other grotesque heads with coefficients of 0 (figure 79, *i'*) and sometimes scattering geometric forms such as figure 79, *j'*.

The presence of the moon-sign not infrequently might indicate that Glyph X declared the accompanying phase of the moon in each Supplementary Series, a not unlikely part of the record in any lunar count. Or again, it may denote special planets or configurations which were prominent at the time of the accompanying Initial Series date; but here again we are as yet in the dark.

Enough has been determined about the Supplementary Series, however, to establish beyond all doubt that it is primarily a lunar count, and probably that it represents an attempt to arrange groups of complete lunar revolutions so as to coincide with possible recurrences of some eclipse phenomenon, either solar or lunar, and possibly even of both.

In collaboration with R. K. Morley and Guthe, the writer has formulated the following points which it appears safe to accept as more or less surely established in regard to this count:

1. The Supplementary Series is a lunar count.
2. It appears to be an attempt to arrange a series of 29 and 30 day months, so as to make the diurnal calendar (*i. e.*, the Long Count) measure the actual lunations without the resulting remainders reaching a whole day in any case.
3. Glyph C appears to show some further arrangement, probably of the months expressed by Glyph A, denoted by coefficients of from 1 to 6, inclusive.
4. The Dresden Codex, (pp. 51-58) shows a lunar count of 29 and 30 day months arranged in groups of 6 months of 177 days each, or more rarely of 178 days each, and occasionally groups of 5 months of 148 days each.
5. It seems reasonable to infer from points 1 to 4 that the Supplementary Series in the inscriptions and pages 51 to 58 of the Dresden Codex treat not only of the same subject, but also are constructed according to the same general plan.
6. This peculiar 6-5 grouping of the 29 and 30 day months is probably caused by the attempt to record or predict solar or lunar eclipses, or possibly even both. (See Meinshausen, 1913.)
7. The arrangement used in the Dresden Codex appears to have been followed, possibly with minor variations, in the inscriptions as well. Although all attempts to fit the former to the latter unchanged have failed, it seems necessary to believe that the same general scheme prevailed in both, because of the internal evidence supplied by the Supplementary Series themselves.
8. Finally, in attempting to ascertain the system used in the inscriptions, the most promising line of investigation appears to be to try first to discover the system followed in any one city (Quirigua and Piedras Negras, because of the regularity of the hotun-markers, are the best adapted for this purpose) from the internal evidence of its own inscriptions alone, since it is already apparent that the Supplementary Series are by no means constructed according to the same universal system as are the Initial Series. That such should be true should not be wondered at, when it is considered that it is a valiant attempt to correlate two incommensurable time periods, and further, that the method of correlation may have been influenced by the eclipses visible at any one point.

APPENDIX VII.

THE HOTUN.

Probably no single phase of the Maya inscriptions is more noteworthy than that of the periodicity of the monuments upon which they are engraved, and certainly no other characteristic of the monuments themselves is of greater importance in determining their function or the nature of the phenomena which regulated the dates of their erection. While this periodicity is not characteristic of the earliest Maya monuments, as we shall presently see, it is encountered, nevertheless, far back in the Old Empire, and even by the early part of Cycle 9, especially at Copan, it had become the controlling factor in the erection of the monuments, and so continued down to the very end of the New Empire, more than 13 centuries later.¹ The writer's attention was first attracted to this phenomenon in 1907 in connection with his first work on the Supplementary Series, during the course of which he discovered that the monuments at Quirigua were erected at intervals of every 1,800 days.

Seler had noted this condition at the same city (where it is most apparent) as early as 1899,² although when the writer made his discovery he was unaware of Seler's work; and in 1910, Bowditch made this phenomenon the subject of a special appendix in his *The Numeration, Calendar Systems, and Astronomical Knowledge of the Mayas*,³ in which he reaches the following conclusion:

"It might be deduced from this table [*i. e.*, a table showing katun, lahuntun, and hotun-endings on the monuments] that in early times the Mayas marked the lapse of each katun by some kind of stone record, as Bishop Landa and others report, and that, as time ran on, they made this record more often, perhaps at the end of each half-katun, and that in still later times the record was made at the end of each quarter-katun. But as the early monuments are probably more defaced than the later ones, and as a large number of monuments are found the glyphs of which are too much worn to be identified, and as undoubtedly there are many monuments yet to be discovered, it is not at all improbable that the quarter-katuns were recorded from the beginning."⁴

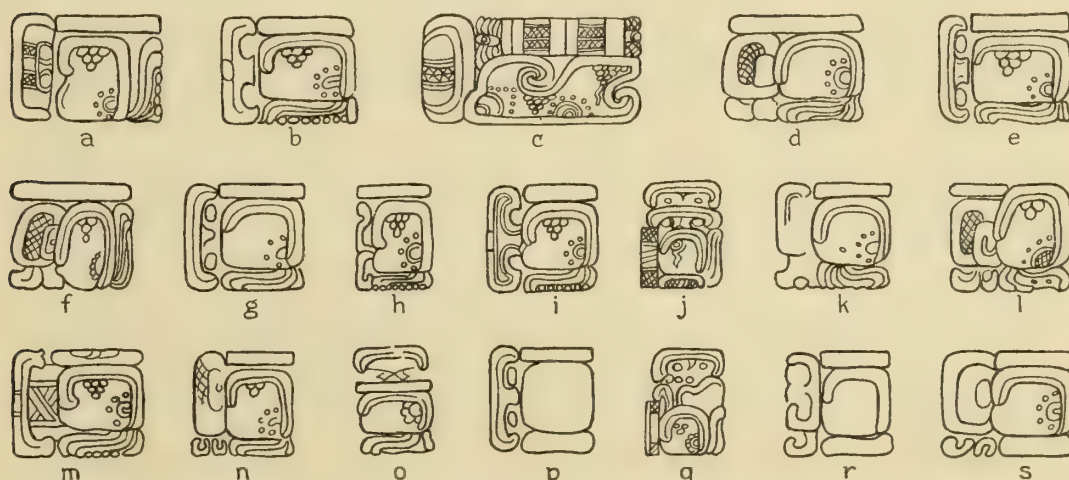


FIG. 81.—Glyph for the hotun: *a*, Piedras Negras, Stela 12; *b*, Quirigua, Stela C; *c*, Copan, Stela 1; *d*, Piedras Negras, Lintel 2; *e*, Piedras Negras, Stela 22; *f*, Piedras Negras, Stela 36; *g*, Yaxchilan, Altar 9; *h*, Quirigua, Stela K; *i*, Quirigua, Stela J; *j*, Copan, Stela 1; *k*, Piedras Negras, Stela 6; *l*, Piedras Negras, Stela 25; *m*, Quirigua, Stela H; *n*, Piedras Negras, Stela 16; *o*, Yaxchilan, Lintel 3; *p*, Piedras Negras, Stela 9; *q*, Copan, East Altar of Stela 5; *r*, Quirigua, Zoömorph G; *s*, Quirigua, Stela D.

¹This is under the writer's correlation of Maya and Christian chronology; under Goodman's it would only be two and a half centuries less, however. (See Appendix II.)

²Seler, 1899, pp. (670)-(738); republished in Seler, 1902-1908, vol. 1, pp. 712-836.

³Bowditch, 1910, Appendix VIII, pp. 310-318.

⁴*Ibid.*, pp. 310-311.

In 1910 the writer first identified the glyph for this 1,800-day period¹ (see figure 81), and during the field seasons of 1912, 1913, 1914, and 1915 increasing evidence as to the widespread prevalence of this custom was accumulated, particularly in 1914 and 1915, during the course of trips to the Peten region of Guatemala, where this phenomenon was noted in 1914 at Naranjo, Ucanal, Ixxun, Seibal, Aguas Calientes, Altar de Sacrificios, El Pabellón, and Piedras Negras, and traces of it at Tikal and Yaxchilan, and in 1915 at Cancuen, Itsimte, Flores, Nakum, Benque Viejo, and La Honradez² (see plate 1).

In 1915, at the meeting of the Nineteenth International Congress of Americanists in Washington, these results were summarized in a paper entitled: "The hotun as the principal chronological unit of the Old Maya Empire;"³ where the following thesis was presented:

"The Maya monuments, and especially those of the stela type, seem to have been used, perhaps primarily, to mark the passage of time, stelæ being erected at intervals of every hotun (1,800 days), or multiples thereof, such as every lahuntun (3,600 days), or katun (7,200 days), throughout the Old Empire, approximately 200 to 600 A. D."⁴

In this paper, also, the name *hotun*⁵ was suggested for the 1,800-day period, and *lahuntun* for the 3,600-day period on the following etymological grounds: The Maya called their 360-day period *tun*, and their 7,200-day period (*i.e.* 20 × 360) *katun*, the latter probably being a contraction for *kaltun*, *kal* being the Maya for 20, and *kaltun*, therefore, 20 tuns. Since *ho* means 5 in Maya, and *lahun* 10, on the basis of the above parallel the writer suggested *hotun* and *lahuntun* as names for the periods of 1,800 days and 3,600 days respectively.⁶ The glyph for the former, as noted above, is shown in figure 81, the winged-Cauac element representing the tun, the bar above 5, and the superfix or prefix having the value of "end of" or "close of." The whole glyph, therefore, may be read as "end of 5 tuns" or "end of a hotun."

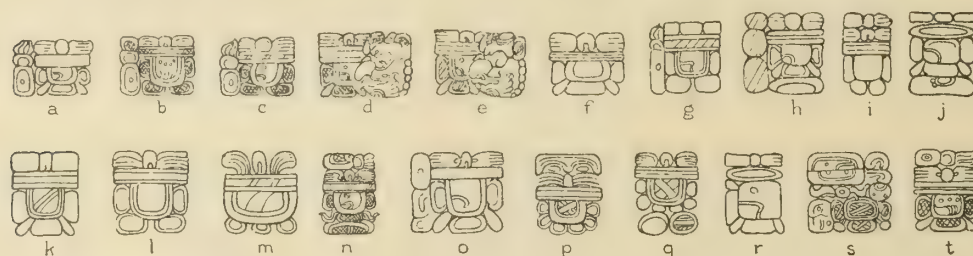


FIG. 82.—Glyph for the lahuntun: *a*, Naranjo, Stela 31; *b*, Naranjo, Stela 22; *c*, Naranjo, Stela 24; *d*, Tikal, Temple III; *e*, Tikal, Temple I; *f*, Seibal, Stela 7; *g*, Naranjo, Stela 13; *h*, Copan, Stela F; *i*, Naranjo, Stela 12; *j*, Quirigua, Stela F; *k*, Tikal, Structure 10; *l*, Piedras Negras, Stela 4; *m*, Copan, Altar H'; *n*, Copan, Stela 6; *o*, Palenque, Temple of the Inscriptions; *p*, Copan, Stela 15; *q*, Copan, Stela P; *r*, Quirigua, Stela F; *s*, Copan, Stela J; *t*, Copan, Stela A.

The glyph for the lahuntun (see figure 82) was first identified by Goodman:

"This glyph occurs immediately after a date that is the beginning of a 10th ahau [*i.e.*, the end of a 10th tun]. The first character is the sign commonly employed, by itself, to denote that circumstance. It is a modification of the quadrated sign for 20 which forms its characteristic feature. There are many variants of it—in fact, I doubt if it ever occurs twice in the same shape; but, whatever the variation, it never fails to indicate a 10th ahau, or an even 10 ahau [*i.e.*, 10-tun] reckoning."⁷

Bowditch calls this interpretation doubtful, on the ground that the element immediately above the quadrated sign for 20, or better, sign for zero, is sometimes 5,

¹Although the writer first identified this glyph in 1910, and described it in 1911, owing to his frequent absences from the country, publication thereof was delayed until 4 years later. (See Morley, 1915, p. 166 and fig. 67.)

²Morley, 1915a, pp. 343-346.

³*Ibid.*, 1917b.

⁴*Ibid.*, p. 201.

⁵This name had been previously suggested in *ibid.*, 1915, p. 166.

⁶Morley, 1917b, pp. 196 and 197.

⁷Goodman, 1897, p. 99.

sometimes 10, and sometimes 15, *i. e.*, one, two, or three bars.¹ It is true that this element erodes down, so that frequently it resembles one or other of these three numbers (see figure 82, *a, h, o*, and *i*), but when perfect it practically always has interior decorations, which show that it is not 10 or 15 and probably not 5 (see figure 82, *b-g, i-n, p-r*). The best explanation for this element would seem to be that it cuts the zero-element in half, as it always does, and cutting any *whole* period in half, *i. e.*, one whose coefficient was zero, in the Maya vigesimal system gave 10 units of the next lower order in all places save periods of the third order, where it gave 9.

As if in support of this morphology for the lahuntun-sign, we find it applied only once to a katun-sign (see figure 82, *o*), where it accompanies the date 9.10.0.0.0 in the Temple of the Inscriptions at Palenque. But Katun 10 is precisely the only katun to which it could be applied and still retain the essence of the meaning suggested for it here, *i. e.*, as indicating half of the period next higher, since Katun 10 is exactly half of a cycle. However, no matter how this sign acquired its meaning, Goodman correctly identified it, as the writer was able to prove in 1915, and Bowditch's objection may doubtless be disregarded.

Field work subsequent to the publication of the above paper on the hotun, moreover, has further corroborated the writer's earlier conclusions. Former prevalence of this custom was established at Uaxactun in 1916,² at Los Higos in 1917,³ and even in the New Empire at Tulum and Chichen Itza in 1918.⁴ In short, since the hotun-glyph was first identified in 1910, it has become increasingly evident that this period, or its second or fourth multiple (*i. e.*, the lahuntun and katun), was the controlling factor in determining upon what dates the Maya erected their monuments throughout both the Old and the New Empire.

In outlining the history of this practice let us seek its origin first, then trace its development during the Old Empire, and finally follow it north into Yucatan, and down to the period of the Spanish Conquest. For the Old Empire, our sources are exclusively archæologic, but when we come to the New Empire we will find documentary evidence bearing directly upon this custom in both the Spanish and native sources.

It has been stated in Chapter V that the three earliest dated objects known, the Tuxtla Statuette, the Leyden Plate, and Stela 9 at Uaxactun, and possibly even Stela 5 at the same site, 8.6.2.4.17, 8.14.3.1.12, 8.14.10.13.15, and 8.15.10.3.12 (?) respectively, show no traces of this custom. From which it appears probable that the first monuments were not erected at the hotun-endings, but that some other factor, possibly an actual historic event or astronomic phenomenon, gave rise to their manufacture and determined the dates recorded upon them. In this connection also it should be noted that none of these four texts have Supplementary Series accompanying their respective Initial Series, at least in a recognizable form. That is, it appears probable that the 29 or 30 day lunar month and the eclipse features were not added to this type of Maya record until some time after their magnificent chronological system had been devised.

The earliest *possible* occurrence of a period-ending date is on Stela 8 at Tikal, where the writer believes he may have found the lahuntun-ending 9.0.10.0.0, and the earliest *certain* example is on Stela 24 at Copan, 9.2.10.0.0, 40 years later. The earliest *possible* occurrence of a katun-ending is on Stela 9 at Tikal, where the writer believes he may have found the katun-ending 9.2.0.0.0, and the earliest *certain* occurrence is on Stela 7 at Copan, 9.9.0.0.0, 140 years later. Finally, the earliest *possible* occurrence of a first or third hotun-ending is on Stela 16 at Copan, 9.4.15.0.0 (very doubtful), and the earliest *certain* occurrence is on Stela 25 at Piedras Negras, 9.8.15.0.0, 80 years later. Even eliminating these doubtful earlier examples, it is

¹Bowditch, 1910, p. 247.

²Morley, 1916a, pp. 339-341.

³*Ibid.*, 1917c, pp. 288, 289.

⁴*Ibid.*, 1918a, p. 274.

clear that the custom began not later than the third lahuntun of Cycle 9 (Copan, Stela 24), and admitting them, as early as the first lahuntun of Cycle 9 (Tikal, Stela 8); in other words, we get our first traces of it some 140 or 160 years after the earliest stela known was erected (Uaxactun, Stela 9).

On the basis of the evidence now available, Stela 8 at Tikal (9.0.10.0.0), Stelæ 20, 24, 15, and 9 at Copan (9.1.10.0.0, 9.2.10.0.0, 9.4.10.0.0, and 9.6.10.0.0 respectively), it appears as though the lahuntun-endings were actually commemorated in this way before the katun-endings, although the latter is much the more important period of the two.

This is so contrary to the logical order for this custom to have followed in its development, *i. e.*, first the katuns, then the half-katuns (the lahuntuns), and finally the quarter-katuns (the hotuns), that even in spite of the above evidence to the contrary, the writer feels that *at first* monuments were only erected at the katun-endings; that is to say, as first worked out, possibly during the close of Cycle 8, at Tikal, the katun-endings (*i. e.*, once every 20 years) were the only times at which stelæ were erected. Later, as the Maya became more prosperous, in a second stage (the first at Copan), they were able to erect the stelæ on lahuntun-endings as well (*i. e.*, once every ten years), and finally, toward the close of the Early Period (9.8.15.0.0), they became sufficiently prosperous to be able to erect them on the first and third hotun-endings as well (*i. e.*, once every 5 years). This surely is the logical order of development, and the fact that the only evidence available tends to indicate the priority of the lahuntun over the katun as the period first chosen for this purpose, the writer believes is due to the chance survival of these few earliest lahuntun-markers and the chance destruction or non-recovery of the earliest katun-markers, rather than to any actual priority of the former over the latter. Bowditch's conclusion (see page 565) that the quarter-katuns were probably marked from the first appears to the writer incorrect. He believes the evidence on this point at least is sufficient to show that the hotun-endings were not marked until some time after the katun and lahuntun-endings—in fact, until toward the close of the Early Period.

The custom, moreover, appears to have varied in different cities at the same time, as the following brief synopsis of the dates at each will indicate:

Tikal.—Even admitting the accuracy of the readings suggested here for Stelæ 8 and 9, after 9.2.0.0.0 (Stela 9) we do not get another hotun-marker until 9.14.0.0.0, 240 years later (Stela 16), and after Stela 16 not another until 10.2.0.0.0, 160 years later (Stela 11); that is, out of the 17 sculptured stelæ at this site, only 2, or possibly 4, are hotun-markers. But as already noted in Chapter V, there are 51 plain stelæ at Tikal, which probably were painted, and possibly were period-ending markers, and if these were erected only at the lahuntun and katun-endings—and no first and third hotun-endings have yet been found here—they would largely fill this gap, otherwise inexplicable in such an important site as Tikal, no less than the largest city of the Old Empire, and indeed of the whole Maya civilization.

Copan.—The situation here has been fully explained in Chapters II, III, and IV. The earliest stelæ are lahuntun-markers and toward the close of the Early Period katun, first and third hotun-markers appear. There are several lacunæ in the sequence of the monuments at Copan, which it has been shown were probably coincidental with corresponding periods of building activity and temple construction.

Piedras Negras.—This city contains one of the two best series of hotun-markers known. Here for a period of nearly 2 centuries probably not a hotun-ending passed without the erection of a corresponding monument to commemorate the event. This is shown graphically in figure 83, where the map of the city appears with a chronological diagram below indicating the dates of the different monuments,

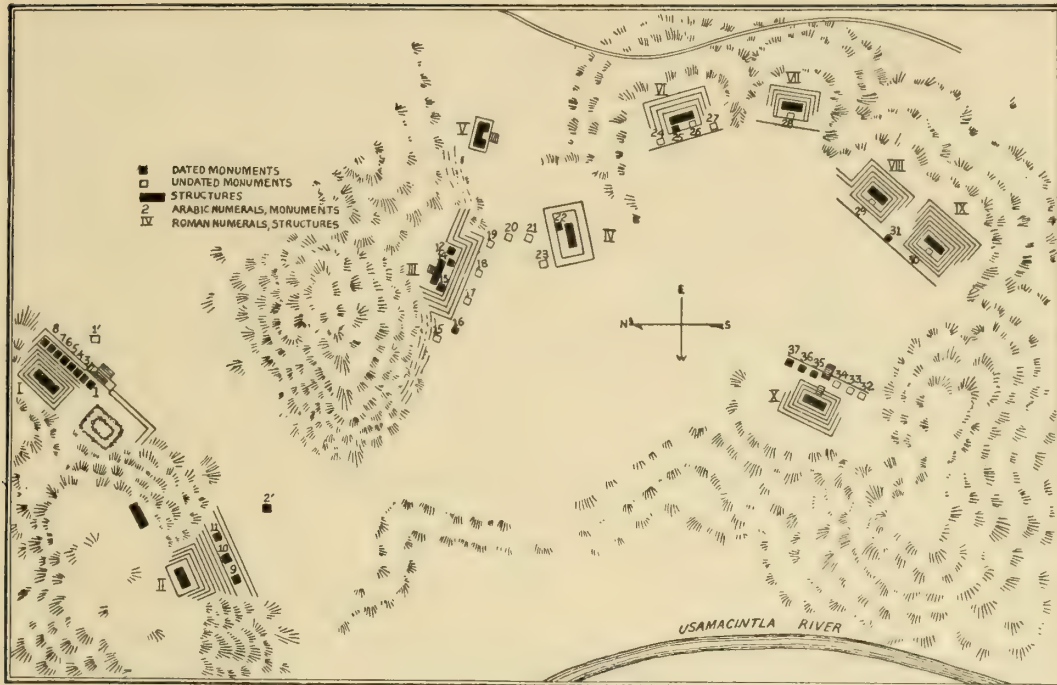


FIG. 83.—Map of Piedras Negras, Guatemala, showing location of the dated and the undated monuments.

each line corresponding to a hotun-ending. When there is a black square and a number in the first column, the number indicates the name of the stela, or in one or two cases altar, which records the corresponding hotun-ending. If the first column is empty this indicates that no monument has yet been found recording this particular hotun-ending. In such cases, however, it should be noted that there are other monuments at the city, the dates of which have not yet been deciphered, shown as white squares on the map in figure 83, which in all probability fill these lacunæ. There are 37 stelæ and 2 large altars at Piedras Negras, the dates of 23 of which, or about 60 per cent., have been deciphered; and since all of the deciphered monuments have been found to be hotun-markers, it appears highly probable that the remaining 16 when deciphered will be found to fill some of these lacunæ. The earliest date at Piedras Negras is 9.8.15.0.0 (Stela 25) and the latest 9.18.5.0.0 (Stela 12). Stylistically considered also, Stela 25 is one of the earliest, if not the very earliest monument, and Stela 12 is surely the latest, so that it is reasonably safe to regard most, if not all, of the other monuments as falling between these two limits. There are, moreover, just 39 hotuns between and including these two dates, and we have seen that there is a total of just 39 monuments known here. These results are so close and satisfactory that the writer has little hesitancy in concluding that the as yet undated monuments at this site will eventually be found to fill most if not all of these lacunæ.

Naranjo.—At this city there is evidence that at first only the katun and lahuntun-endings were marked, 9.10.0.0.0 (reused

Monu-ments.	Hotuns.
	<i>Early Period.</i>
25■	9. 8. 15. 0. 0
	9. 9. 0. 0. 0
	9. 9. 5. 0. 0
	9. 9. 10. 0. 0
	9. 9. 15. 0. 0
	9. 10. 0. 0. 0
	<i>Middle Period.</i>
31■	9. 10. 5. 0. 0
	9. 10. 10. 0. 0
	9. 10. 15. 0. 0
	9. 11. 0. 0. 0
	9. 11. 5. 0. 0
35■	9. 11. 10. 0. 0
36■	9. 11. 15. 0. 0
37■	9. 12. 0. 0. 0
	9. 12. 5. 0. 0
	9. 12. 10. 0. 0
6■	9. 12. 15. 0. 0
8■	9. 13. 0. 0. 0
2■	9. 13. 5. 0. 0
4■	9. 13. 10. 0. 0
1■	9. 13. 15. 0. 0
3■	9. 14. 0. 0. 0
5■	9. 14. 5. 0. 0
7■	9. 14. 10. 0. 0
1'■	9. 14. 15. 0. 0
11■	9. 15. 0. 0. 0
	<i>Great Period.</i>
9■	9. 15. 5. 0. 0
10■	9. 15. 10. 0. 0
	9. 15. 15. 0. 0
2'■	9. 16. 0. 0. 0
22■	9. 16. 5. 0. 0
	9. 16. 10. 0. 0
16■	9. 16. 15. 0. 0
13■	9. 17. 0. 0. 0
	9. 17. 5. 0. 0
	9. 17. 10. 0. 0
	9. 17. 15. 0. 0
14■	9. 18. 0. 0. 0
12■	9. 18. 5. 0. 0

lintel in the Hieroglyphic Stairway) and 9.10.10.0.0 (the Hieroglyphic Stairway). In 9.13.15.0.0 (Stela 21) and again in 9.14.15.0.0 (Stela 18), however, third hotun-endings were recorded, but this practice does not appear to have continued, as the closing group of stelæ were all erected on lahuntun or katun-endings again, 9.17.10.0.0 (Stelæ 13 and 19), 9.18.0.0.0 (Stela 14), 9.18.10.0.0 (Stelæ 8 and 12), 9.19.0.0.0 (Stelæ 7 and 10), and 9.19.10.0.0 (Stela 32). However, there are 32 sculptured stelæ at this site, the dates of only about half of which have been deciphered, so that some of the undeciphered monuments probably fill the existing lacunæ in the series of hotun-markers there.

Palenque.—The evidence here is very limited. There is only one stela known and a few wall tablets. As far as they go, however, these conform with this practice: 9.10.10.0.0 (Temple of the Sun), 9.11.0.0.0 (Palace Group and a small slab of unknown provenance), and 9.13.0.0.0 (Temples of the Inscriptions and Foliated Cross, and the stela in front of the Temple of the Cross).

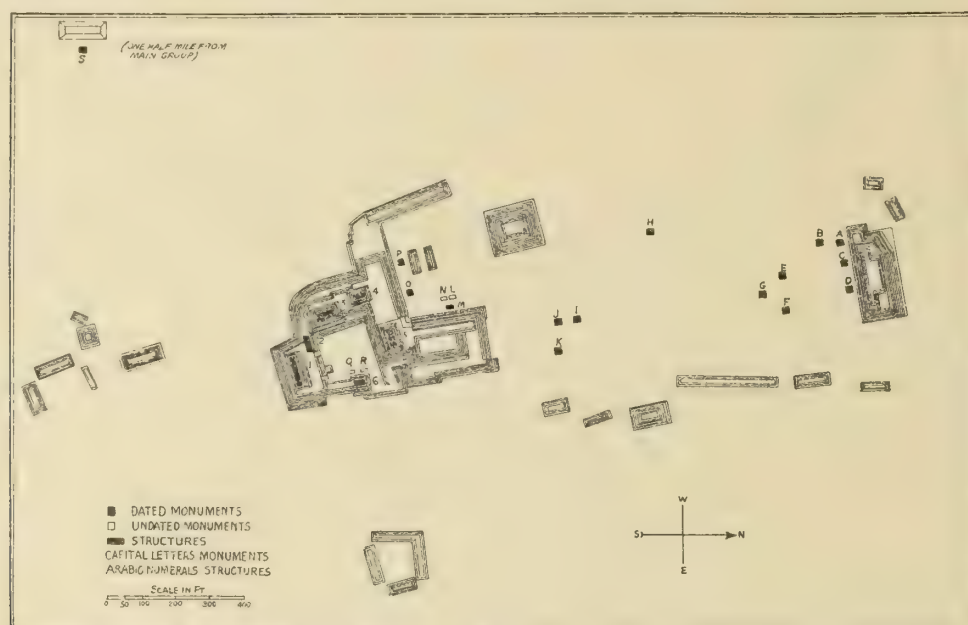


FIG. 84.—Map of Quirigua, Guatemala, showing location of the dated and the undated monuments.

Yaxchilan.—The evidence at this site is the most unsatisfactory of all, though even here traces of the custom appear. Of the 20 stelæ, only one records a hotun-ending, 9.16.10.0.0 (Stela 1). An altar was dedicated in 9.15.15.0.0, and two lintels in 9.16.5.0.0 (Lintel 3) and 9.17.0.0.0 (Lintel 31). Many of the dates here have not been deciphered, and many more, particularly on the lintels, which were the commonest media for hieroglyphic treatment at Yaxchilan, present odd dates at the ends of no periods in the Long Count, and thus possibly refer to historic or astronomic events.

Nakum.—There are only 3 sculptured stelæ at this site, but each one of these conforms to this custom: 9.17.0.0.0 (Stela U), 9.19.10.0.0 (Stela C), and 10.1.0.0.0 (Stela D). There are 12 other plain stelæ here, and assuming that they were either lahuntun or katun-markers like the 3 sculptured ones, and that 10.1.0.0.0 is the latest date, these would carry the series of period-markers at this site back to 9.14.0.0.0 for its beginning.

Monu-ments.	Hotuns.
M	9.15. 0.0.0 <i>Great Period.</i>
	9.15. 5.0.0
	9.15.10.0.0
S ■	9.15.15.0.0
H ■	9.16. 0.0.0
J ■	9.16. 5.0.0
F ■	9.16.10.0.0
D ■	9.16.15.0.0
E ■	9.17. 0.0.0
A&C ■	9.17. 0.0.0
B ■	9.17.10.0.0
G ■	9.17.15.0.0
O ■	9.18. 0.0.0
P ■	9.18. 5.0.0
I ■	9.18.10.0.0
K ■	9.18.15.0.0
I ■	9.19. 0.0.0

Quirigua.—The series of hotun-markers at this site is the most satisfactory in the Old Empire, for there is not a single gap after the erection of the first stela in 9.15.15.0.0 (Stela S) down to and including the last hotun-ending recorded here, 9.19.0.0.0 (Structure 1). This is shown graphically in figure 84, where a map of the city appears with a chronological diagram below giving the dates of the different monuments after the same scheme as in figure 83. It will be noticed in figure 84 that there are no undated stelæ at Quirigua, and only 4 undated altars, N, L, Q, and R, the latter being small and relatively unimportant. The earliest hotun-ending is 9.15.0.0.0 (Altar M) and the next 9.15.15.0.0 (Stela S), after which the series continues without a single break for 65 years down to and including 9.19.0.0.0 the last date at Quirigua (Structure 1), one hotun, namely that ending in 9.17.5.0.0, being commemorated by two monuments (Stelæ A and C). This is the most satisfactory sequence of all, so much so, in fact, that before the discovery of the last monument at Quirigua, Stela S, in 1913, the writer had predicted that if another monument were found there it would record either of the hotun-endings 9.15.15.0.0, or 9.19.0.0.0, *i.e.*, the two open ends of the sequence at that time. Subsequently Mr. M. D. Landry, of the United Fruit Company, found Stela S a kilometer southwest of the main group, and this proved to record the date 9.15.15.0.0, one of the two which had been predicted for it.

Uaxactun.—Of the 11 sculptured stelæ known at this site, at least 3 record katun-endings, 9.14.0.0.0 (?) (Stela 1), 9.16.0.0.0 (Stela 2), and 9.19.0.0.0 (Stela 7). There are other early monuments here, 8.14.10.13.15 (Stela 9), 8.15.10.3.12 (?) (Stela 5), 9.3.13.0.0 (Stela 3), and 9.8.6.?3 (?) (Stela 6), however, which do not conform to this practice, and 4 others which are undecipherable (Stelæ 4, 8, 10, and 11).

Yaxha.—Only one monument has been dated at this site (Stela 6), and that very doubtfully as 9.11.5.0.0.

La Honradéz.—The 10 sculptured stelæ here are very much effaced, owing to the inferior quality of the limestone upon which they were carved. Only one has been surely dated, but it records the katun-ending, 9.17.0.0.0 (Stela 7). Other doubtfully deciphered monuments here are 9.17.10.0.0 (?) (Stela 6), 9.18.0.0.0 (?) (Stela 5), and 9.18.10.0.0 (?) (Stela 4), although there is not much doubt as to the dates of the last two. The latest monument at this site on stylistic grounds is Stela 4, and assuming that the 6 as yet undeciphered stelæ recorded lahuntun or katun-endings prior thereto—and no first or third hotun-endings have been found here—these would carry the series of monuments back to 9.14.0.0.0.

Seibal.—The custom at this site appears to have been to commemorate only the lahuntun and katun-endings, no first or third hotun-endings having been found here. The following dates have been deciphered: 9.16.0.0.0 (Hieroglyphic Step), 9.17.0.0.0 (Stela 6), 9.18.0.0.0 (Stela 12), 9.18.10.0.0 (Stela 7), 10.1.0.0.0 (Stelæ 8, 9, 10, 11), and 10.2.0.0.0 (Stela 1). The dates of Stelæ 2, 3, 4, and 5 have not been deciphered yet; they may have marked some of the missing lahuntun-endings.

Ixkun.—Only one monument has been surely dated at this site, 9.18.0.0.0 (Stela 1), although the lahuntun-ending 9.18.10.0.0 is probably recorded on Stela 5. There is a third monument here (Stela 2), none of the dates of which, although perfectly legible, appears to conform to this custom.

Itsimte.—The dates of 4 monuments have been deciphered at this site, 2 surely and 2 doubtfully; all 4, however, conform to this custom, 9.14.0.0.0 (?) (Altar 1), 9.14.10.0.0 (?) (Altar 2), 9.15.0.0.0 (Stela 5), and 9.15.10.0.0 (Stela 2).

Altar de Sacrificios—El Pabellón.—Of the 4 decipherable monuments at these two sites, which are so near each other as to be really parts of the same center, 3 record katun or lahuntun-endings, 9.10.0.0.0 (El Pabellón, Stela 1), 9.10.10.0.0 (Altar de Sacrificios, Stela 4), and 9.14.0.0.0.0 (Altar de Sacrificios, Stela 7).

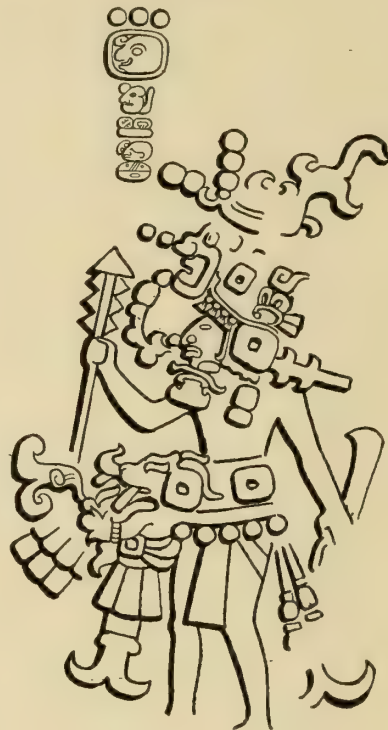
The remaining sites each have one or two datable monuments only, but in every case these are found to conform with this practice.

Tzendales.	9.13. 0.0.0 (Temple of the tablet).
El Cayo.	9.17. 5.0.0 (?) (Stela 1).
Los Higos.	9.17.10.0.0 (Stela 1).
La Mar.	9.17.15.0.0 (Stela 1), 9.18.15.0.0 (Stela 2).
Aguas Calientes.	9.18. 0.0.0 (Stela 1).
Cancuen.	9.18. 0.0.0 (Stela 2), 9.18. 5.0.0 (Altar 2).
Ucanal.	10. 1. 0.0.0 (Stela 3).
Benque Viejo.	10. 1. 0.0.0 (Stela 1).
Flores.	10. 1. 0.0.0 (Stela 1), 10. 2. 0.0.0 (Stela 2).
Quen Santo.	10. 2. 5.0.0 (Stela 1), 10. 2.10.0.0 (Stela 2).
Chichen Itza.	10. 2.10.0.0 (Temple of the Initial Series).

85



86



87

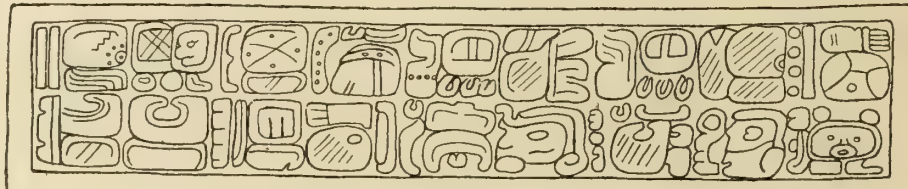


FIG. 85.—Design and part of inscription on front of Stela 1 at Tulum, Yucatan.

FIG. 86.—Design and inscription on cliff at the Hunucab mouth of the Cave of Loltun, Yucatan.

FIG. 87.—Inscription on front of lintel in the Temple of the Initial Series at Chichen Itza, Yucatan.

It is apparent from the foregoing summary that this custom was practiced throughout the Old Empire, even those small sites which have only one or two

monuments conforming to it. In some places, notably at Piedras Negras and Quirigua, the custom of marking every hotun-ending by the erection of a stela was rigidly adhered to, but more often only the lahuntun and katun-endings were thus commemorated, and in some places the custom even seems to have changed from time to time, as at Naranjo, for example.

Turning next to the New Empire, we find not only archæologic evidence of the prevalence of this custom, both on the monuments and in the codices, but also direct documentary proof thereof in the post-conquest sources, Spanish as well as native.

Mention has been made elsewhere that the contemporaneous date of the Chichen Itza lintel was originally assumed to have been declared by the Initial Series 10.2.9.1.9 on its under side, but that in 1918 the writer was able to show that it was declared by the Period Ending date on the front instead, which records the lahuntun-ending 10.2.10.0.0 2 Ahau 13 Chen.¹ This is shown in figure 87, where the inscription on the front of this lintel is represented. The first glyph, A1, is the lahuntun-sign, here shown in a very unusual manner. Instead of the regular lahuntun-sign (see figure 82), A1 is composed of the "winged-Cauac" variant of the tun-sign with a coefficient of 10, making the whole glyph 10 tuns or a lahuntun. The last glyph on the front, 12, declares the day on which this lahuntun ended, namely, 2 Ahau, and the glyph just above, 11, the day of the Initial Series terminal date, 9 Muluc, 331 days earlier. A1, 12, therefore, may be interpreted as "Tun 10, ending on the day 2 Ahau," which, in conjunction with the Initial Series on the under side, indicates that the lahuntun 2 Ahau here intended was 10.2.10.0.0 2 Ahau 13 Chen, thus conforming to the regular practice. The Chichen Itza lintel is the earliest hotun-marker known in the New Empire.

The next occurrence on a New Empire monument is Stela 1 at Tulum (see figure 85). The contemporaneous date of this monument also was first thought to be declared by the Initial Series, which Howe correctly deciphered as 9.6.10.0.0 8 Ahau 13 Pax.² In 1918, however, the writer found a missing fragment of this stela, giving a later Period Ending date, which, with other glyphs on the back (see figure 88, *a* and *b*), indicates that its contemporaneous date was the lahuntun-ending 10.6.10.0.0 7 Ahau 18 Yaxkin instead, exactly 1 cycle later than its Initial Series, and about 80 years later than the Chichen Itza lintel.³ (Note the lahuntun-sign in figure 85 at A15, and in 88, *b*, at A2, and the day 7 Ahau in figure 85 at A16, in 88, *a*, at A2, and in 88, *b*, at A1.) Thus the Tulum stela is also seen to conform with this practice.

We have already seen that Initial Series dating fell into disuse in the New Empire, being replaced by Period Ending dating. So it is not surprising to find our next example from the Cave of Loltun near the modern village of Oxkutzcab, northern Yucatan, recorded as a Period Ending date, a Katun 3 Ahau. On a vertical wall at the Hunacab entrance of this cave there is sculptured a large deity, ruler, priest, or warrior, 3 meters high, with a ceremonial staff in his right hand and a club (perhaps an *atlatl* or spear-thrower) in his left hand. (See figure 86.) Above and to the left is a panel of 3 glyph-blocks, the first of which is the day 3 Ahau. The whole composition is doubtless to be interpreted as the ending of some Katun 3 Ahau, the anthropomorphic figure being the deity or ruler who presided over the particular katun recorded.

Turning to the *u kahlay katunob* on page 503 we will see that in all probability this Katun 3 Ahau was the one which ended in 1379 A. D., that is, the only one after the end of the League of Mayapan, corresponding to the Initial Series 12.1.0.0.0

¹Morley, 1918a, p. 274.

²Howe, 1911, p. 546.

³Morley, *op. cit.*, pp. 274, 275. See also Morley, 1916a, pp. 338, 339, and 1917, pp. 190, 192, 193, 201, 202.

3 Ahau 18 Kayab. This is so because the only other three Katuns 3 Ahau in the *u kahlay katunob* subsequent to the discovery of Chichen Itza (10.2.0.0.0 3 Ahau 3 Ceh, 610 A. D., 10.15.0.0.0 3 Ahau 18 Pop, 866 A. D., and 11.8.0.0.0 3 Ahau 18 Chen, 1122 A. D.) are too early to be probable on historic grounds, as indicated by the following evidence. The *atlatl*, which the deity or ruler in figure 86 holds in his left hand, is a Nahuatl weapon, and the Nahuatl influence did not become strong in Yucatan until after 11.12.0.0.0 8 Ahau 3 Mol (1201 A. D.), when, owing to the victory of Hunnac Ceel, the *halach vinic* of Mayapan, over the Itza in that katun, Chichen Itza seems to have been turned over to the Nahua troops, who had aided Hunnac Ceel in its conquest. The last Katun 3 Ahau before the Spanish Conquest *i.e.*, that ending in 1379, therefore is probably the one intended here.

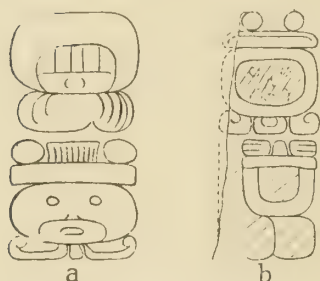


FIG. 88.—Parts of inscription on back of Stela 1 at Tulum, Yucatan.

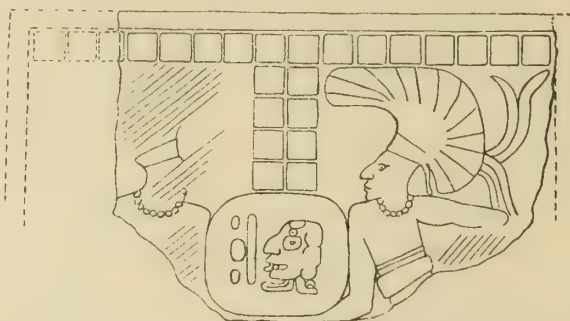


FIG. 89.—Design and part of inscription on front of Stela 1 at Ichmul, Yucatan (top only recovered).

A third example of doubtful date is Stela 1 at Ichmul (see fig. 89). This is only the upper part of the monument, the lower part having disappeared. It is now built into the wall of a house on the Hacienda of Ichmul, some 40 kilometers east of north from Chichen Itza. Two human figures hold in their right and left arms respectively a large central glyph-block, which records the day 6 or 7 Ahau, probably the latter. Across the top of the monument runs a row of glyph-blocks, of which originally there would seem to have been 24. (The left side of the stela is missing, see fig. 89.)

Unfortunately, owing to the uncertainty as to whether the day 6 Ahau, or as the writer is inclined to believe, 7 Ahau, is recorded here, it is impossible to date this monument exactly. The following readings are the best possibilities, however: 11.13.0.0.0 6 Ahau 3 Zip (1221), 11.19.0.0.0 7 Ahau 13 Chen (1339), and 12.6.0.0.0 6 Ahau 3 Zac (1477), with the second, 11.19.0.0.0, as the best of all.

Another New Empire katun-marker is Stela 9 at Mayapan, the former capital of the Cocom, and during the fourteenth and early fifteenth centuries the leading city in Yucatan. This monument (see fig. 90, *a*) was undoubtedly one of those described by Landa as having been discovered by him "in the plaza of that city."¹ It was rediscovered by the Abbé Brasseur de Bourbourg in 1866, three centuries later,² and was subsequently removed to the *casa principal* of the Hacienda of Xcanchakan on the lands of which the ruins of Mayapan lie, and there built into a wall in the corridor, where it is excellently preserved.

Again we see two figures facing each other, the right-hand one apparently Itzamna, God D of the Schellhas classification, the day-sign 10 Ahau in front of a baton he holds in his right hand.³ This is clearly to be interpreted as Katun 10

¹For this whole passage, see page 577.

²Brasseur de Bourbourg, 1867, pp. 246-249, and figure 4.

³The details of this day-sign as well as those of the other glyphs on this stela were painted, not carved, and have consequently disappeared; the coefficient 10, however, is unusually clear.

Ahau, and this monument is one of those very "stones" which Landa says the natives told him they were accustomed to erect "every 20 years, which is the number they use for counting their ages." Referring to the *u kahlay katunob* on page 503, we will find that there are only two Katuns 10 Ahau to which this monument could possibly have belonged, namely, 11.11.0.0.0 10 Ahau 3 Mac (1182) and 12.4.0.0.0 10 Ahau 18 Uo (1438). The writer inclines to the latter of these, as the carving on Stela 9 is excellently preserved, and the more recent date is therefore the better of the two.

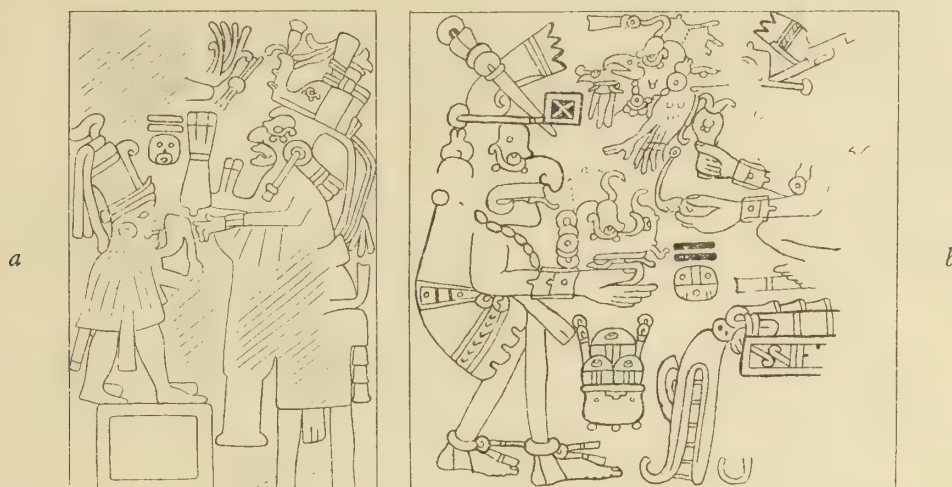


FIG. 90.—*a*. Principal part of design on front of Stela 9 at Mayapan, Yucatan. *b*. Part of middle section of page 11 of the Codex Peresianus.

If 12.4.0.0.0 10 Ahau 18 Uo was the Initial Series corresponding to this Katun 10 Ahau, as the writer believes, then Stela 9 was the last monument to be erected at Mayapan, because before the next one fell due, *i. e.*, at the end of the next katun, Katun 8 Ahau (1458), the city was destroyed by a league of Maya chieftains under the leadership of Tutul Xiu, *halach vinic* of Uxmal, and the Cocom forced to seek new homes elsewhere.

Coming next to the codices, the writer has stated in Chapter I (see page 43) that the middle sections of pages 2 to 11 of the Codex Peresianus appear to record an *u kahlay katunob*. Here we can see a series of 10 pictures, each having two anthropomorphic figures facing each other, just as in figure 89, and more particularly in figure 90, *a*, and similarly between the two figures in each picture there is a day Ahau, decreasing from left to right by 2 in each picture, beginning with 2 Ahau on page 2 and continuing as follows: 13 Ahau (p. 3), 11 Ahau (p. 4), 9 Ahau (p. 5), 7 Ahau (p. 6), 5 Ahau (p. 7), 3 Ahau (p. 8), 1 Ahau (p. 9), 12 Ahau (p. 10), and 10 Ahau (p. 11), possibly parts of an *u kahlay katunob*.

The picture on page 11 of this codex is shown in figure 90, *b*, where we see two anthropomorphic figures facing each other. Here the left-hand one is Itzamna, God D; the right-hand and smaller one, sitting on a platform, is badly effaced. Itzamna offers in his hand the head of Kukulcan, the Long-nose God (B of the Schellhas classification), and just in front of this head is again the day 10 Ahau.

The writer believes this picture shows the same Katun 10 Ahau as the one on Stela 9 at Mayapan, and it should be noted that the same deity, God D, is the principal figure in each tableau. If this identification is correct, pages 2 to 11 of the

Codex Peresianus cover the period from 1241 (beginning of Katun 2 Ahau) to 1438 (end of Katun 10 Ahau). Unfortunately, it appears more probable from the nature of the pictures in this section of the codex that they refer to rites and ceremonies which took place at the ends or installations of these katuns rather than to historical events which occurred in the corresponding periods. Always we have the same principal elements—a large figure on the left, apparently a deity, offering the head of Kukulcan to a smaller figure seated on a platform or dais. Above there hovers a bird, which differs in the different pictures, and below we see a vessel holding corn, *i. e.*, the sign for the day Kan. The similarity of these 10 pictures strongly suggests that they refer to certain rites and ceremonies which took place when one katun ended and another began,¹ and the large figure present in each is probably to be interpreted as the deity presiding over the corresponding katun. In a word, it appears probable that these pages of the Codex Peresianus treat of ritualistic rather than historical matters.

Up to this point all the evidence examined has been drawn exclusively from archæological sources; let us next turn to the documentary evidence touching upon the prevalence of this custom. So explicit is Nakuk Pech upon this point that a quotation from his chronicle, already previously cited, will bear repetition here:

"In this year [1517] the katun ended, and then ended the putting in place of the town-stone, for at each twentieth stone they came to place the town-stones, formerly, when the Spaniards had not yet come to Cuzamil, to this land; since the Spaniards came, it has ceased to be done."²

The entries in the second chronicle from the Book of Chilán Balam of Chumayel bearing upon this point tend to indicate that just prior to the time of the Spanish Conquest at least, several towns combined to celebrate this festival, the town-stone (*u tunil balcah*) first being put up in one town, and that for the next katun, in another, and so on:

- [Katun] 12 Ahau: the stone of Otzmal was taken.
- [Katun] 10 Ahau: the stone of Zizal³ was taken.
- [Katun] 8 Ahau: the stone of Kancaba was taken.
- [Katun] 6 Ahau: the stone of Hunnacthi was taken.
- [Katun] 4 Ahau: the stone of Ahtiku was taken; in this katun took place
the pestilence, in the fifth tun of Katun 4 Ahau.
- [Katun] 2 Ahau: the stone of Chacalna was taken.
- [Katun] 13 Ahau: the stone of Euan was taken.

¹Says Landa in describing this ceremony: "If the Spaniards had not been here they would have adored the idol of 11 Ahau until the year of [15]51, which are 10 years and at the 10th year they would have set up another idol, 9 Ahau, and they would have honored it, guiding themselves by the prognostications of 11 Ahau [from the year of 1541] until the year of [15]61, and then taking it away from the temple and putting there the idol of 7 Ahau [surely a mistake for 9 Ahau, see following] and guiding themselves by the prognostications of 9 Ahau for another 10 years [apparently until 1571], and thus they made a complete round; in this manner they venerated their katuns for 20 years [each], and [for ?] 10 they arrange their superstitions and tricks, which are so many and of such a sufficiency as to deceive simple people, who look not at things as do those who are versed in the affairs of nature, and the dealings which the demon has with them." (Landa, 1881, p. 103.) In this highly confused and confusing passage it is hard to make out just what method of procedure Landa is trying to describe, introducing as he does the idols for three katuns, 11 Ahau, 9 Ahau, and 7 Ahau, in a period of 30 years (1541 to 1571). The only natural assumption is that each deity presided over a full katun, reigning from the end of the preceding katun to the end of its own, *i. e.*, 20 years. This introduction of a half-katun might, however, be construed as indicating that the idol of a specific katun was not placed in the temple until the katun over which it presided was half completed, and that it was not taken therefrom until the first half of the next katun had passed; but this seems to be going far out of the way indeed, to help a passage which is beyond help.

²Brinton, 1882, p. 227.

³Possibly the modern Sisal, on the northern coast of Yucatan, the principal port during the Spanish Period.

[Katun] 11 Ahau: in the time of its beginning the stone of Coloxpeten was taken; in this katun died the water-bringer Napotxiu, in the first tun of [Katun] 11 Ahau; it was also in this katun that the Spaniards first arrived here in this land, in the seventh year of Katun 11 Ahau; also Christianity began in the year of fifteen hundred and nineteen, the year of our Lord 1519.

[Katun] 9 Ahau: no stone was taken at this time; in this katun first came the bishop Brother Francisco Toral; he arrived in the sixth tun of Katun 9 Ahau.¹

The idea conveyed by this passage is that a group of towns possibly joined in putting up the same katun-marker, first at one of their number and then at another; thus both this and the Nakuk Pech quotation clearly refer to the erection of monuments at the katun-endings.

The Spanish authorities are no less explicit, Bishops Landa and Cogolludo both making unmistakable reference to the same custom. Says Landa in this connection:

"There was discovered in the plaza of that city [Mayapan] seven or eight stones, each 10 feet in length, round at the end, and well worked. These had some writings in the characters which they use, but were so worn by water that they could not be traced. Moreover, they think them to be in memory of the foundation and destruction of that city. There are other similar ones, although higher, at Zilan,² one of the coast-towns. The natives when asked what these things were, replied that they were accustomed to erect one of these stones every twenty years, which is the number they use in counting their ages."³

And Cogolludo has the following:

"Their lustras having reached five in number, which made 20 years, which they call a katun, they place a graven stone on another of the same kind laid in lime and sand in the walls of their temples and the houses of the priests, as one still sees to-day in the edifices in question, and in some ancient walls of our own convent at Merida, about which there are some cells. In a city named Tixhualatun, which signifies 'place where one graven stone is placed upon another,' they say are their archives, where everybody had recourse for events of all kinds, as we do to Simancas."⁴

The foregoing quotations, the writer believes, leave little room for doubt but that the practice of erecting monuments at the ends of successive katuns of the Maya chronological era persisted down to the time of the Spanish Conquest, and, what is even more important, they corroborate and explain the archæologic evidence and constitute nothing less than direct documentary proof of the former existence of this custom.

Reviewing Maya history from its beginnings, we may conclude that although this custom was an early development of their civilization, there was a time when monuments and smaller objects were not dedicated at the ends of even periods of their chronological era.

¹Brinton, 1882, pp. 171, 172.

²In February 1918, the writer found here parts of two stelæ, which may have been the very ones referred to by Landa in the above passage, another instance of the reliability and trustworthiness of his statements. Only the lower part of Stela 1 has been recovered. It presents a band of 5 glyphs at the bottom, the first 2 of which record the Calendar Round date 7 Muluc 2 Kayab. Above is a crouching human figure upon whose back stands the principal figure; the break occurs at the knees of the latter, and the rest of the stela is still missing. The fragment recovered is built into a back wall of the cabildo, on the southern side of the plaza, and some local artist has modeled in stucco the missing parts of the legs, torso, head, and arms, reconstructing the figure as that of a Mexican or German (?) soldier, helmet on head, and gun, with fixed bayonet, in hand. Stela 2 is built into a wall on the north side of the church-yard. It is much more effaced than Stela 1 and all that can be distinguished is a standing human figure with elaborately plumed head-dress, and 7 glyph-blocks, 4 before and 3 behind; all are too effaced to decipher. Both these stelæ seem to have been found in excavating a platform which runs in front of a high, long mound, just west of and facing the church. Stela 1 is said to have been built into the back wall of the cabildo in 1900.

³Landa, 1881, p. 75.

⁴Cogolludo, 1688, p. 186.

From all the evidence now available it appears probable that the Maya chronological system was devised some time before 8.6.2.4.17, although not necessarily long prior thereto, to keep account of periods longer than the Calendar Round, *i. e.*, 52 years of 365 days each. For this purpose a remarkable vigesimal mathematical system, including numeration by position, a fixed hypothetical starting-point, and an ingenious arithmetical notation of bars and dots and several specialized characters for zero, was invented, but underlying this, and of a still earlier date, there were (1) a sacred or divinitory year composed of 20 names combined with 13 numerals, making 260 days, and (2) a solar year fixed at 365 days in length, *i. e.*, composed of 18 months of 20 days each and a closing period of 5 days, as the two basic elements of Maya chronology.

At first this extraordinarily accurate chronology was utilized for the record of any date, regardless of when it occurred, as evidenced by the casuality of the earliest dates, 8.6.2.4.17, 8.14.3.1.12, 8.14.10.13.15, and possibly 8.15.10.3.12, but very early, perhaps within a century of the last one of these, *i. e.*, about the beginning of Cycle 9, an exceedingly important change was introduced, no less than the practice of restricting the erection, of the larger monuments at least, to the ends of even periods in their chronological era.

Several fairly obvious factors must have contributed largely to the origin and development of this practice. In the first place, to erect a monument or dedicate a smaller object *after* the event which it was to commemorate, was to violate the whole Mayan conception of time. The Maya conceived, measured, and recorded time in terms of elapsed units, which kept them continually looking *forward* into the future for their dates of ceremonial importance, *i. e.*, those which would close their time-periods. This of itself would tend to restrict the erection and dedication of monuments to dates determined in advance by the passage of successive units of their chronological system, rather than to encourage the memorialization of early events at fortuitously chosen later times.

Another very practical advantage to which this custom gave rise was the ample opportunity it afforded the priests to make the necessary arrangements for these important occasions, which the writer has pointed out in Chapter V required considerable forethought, elaborate planning, and coordination of activities in the not inconsiderable mechanical labor involved in quarrying, transporting, and erecting the monuments, to say nothing of the artistic efforts involved in their sculpture.

A third factor was that of economic necessity. The work of many kinds, required to bring a monument to the point of completion must have withdrawn from purely economic production many laborers at not infrequent intervals, and as the period-endings in a very brief time shift all around the cycle of the seasonal year, it is obvious that careful planning was necessary to prevent these religio-esthetic activities from interfering with the more urgent need of producing corn and cotton, *i. e.*, food and clothing, in sufficient quantities to meet the requirements of the community. The latter demands were imperative. The beginning of the dry season fixed the time when the bush had to be felled, the beginning of the rainy season when the fields had to be planted. These labors brooked no delay, and other activities, religious, architectural, etc., had to be made to conform to the exigencies of agriculture. Thus the selection, a long time in advance, 5, 10, and 20 years, of the dates upon which their monuments were to be erected, gave the Maya ample time to prepare for these events, without interfering with the production of those food and clothes-stuffs upon which the very life of the community depended. And so, about the beginning of Cycle 9, the custom of erecting their monuments only on

period-endings was inaugurated, and the original custom of erecting them after the events they memorialized had taken place, as evidenced by the casuality of the dates of the earliest monuments as opposed to the periodicity of the dates of the great majority of the later ones, was discontinued.

It must not be concluded that important dates, not coinciding with period-endings, were never recorded. On the contrary, many such were, as for example the important date 9.16.12.5.17 6 Caban 10 Mol at Copan, 9.14.13.4.17 12 Caban 5 Kayab and 9.15.6.14.6 6 Cimi 4 Tzec at Quirigua, 9.11.12.7.2 2 Ik 10 Pax and 9.13.9.14.15 7 Men 18 Kankin at Piedras Negras; 9.15.10.17.14 6 Ix 12 Yaxkin at Yaxchilan, and 9.12.10.5.12 4 Eb 10 Yax, 9.12.15.13.7 9 Manik 0 Kayab, and 9.14.1.3.19 3 Cauac 2 Pop at Naranjo. But the important point in *all* these cases is that these casual dates (with the exception of 9.16.12.5.17) are never the contemporaneous dates of the monuments upon which they are recorded, but are always *prior thereto*, the contemporaneous date in each case being a *subsequent period-ending*. Thus, for example, at Quirigua four different monuments begin with the date 9.14.13.4.17 12 Caban 5 Kayab, but Secondary Series in each case bring forward the beginning dates to subsequent period-endings which are in each case the corresponding contemporaneous date of the monument, *i.e.*, Stela J, 9.16.5.0.0; Stela F, 9.16.10.0.0, Stela E, 9.17.0.0.0, and Zoömorph G, 9.17.15.0.0.

By *beginning* their inscriptions with such dates as these, or reaching them by Secondary Series elsewhere in the texts, the Maya were able to record events of astronomical or historical importance to them, *but upon* monuments which were erected at fixed predetermined periods. The period-markers were in effect, 5, 10, or 20 year almanacs issued at the ends of these respective periods, which covered important matters that had come to pass therein, or even earlier.

The unit of their chronological system first selected for this important purpose was probably the katun, or 20-year period, in spite of the fact that all our earliest examples are of lahuntuns, but as the Maya waxed in strength, wealth, and prosperity they were able to erect monuments more frequently, and presently this interval was cut in half, and the lahuntun-endings were similarly commemorated.

Still later, as we have seen, this interval was again cut in half at some cities, and every hotun or 5-year period marked by the erection of a corresponding monument. And thus the matter continued throughout the Old Empire. As the succeeding hotun-endings came around, all over that considerable region from Palenque and Ocosingo in the west, across the valleys of the Usumacinta, Lacantun, Pasión, and Motagua Rivers, and the rolling plains and interior drainage area of northern Peten to Quirigua and Copan in the southeast (see plate 1), on the same day monuments were being dedicated, with elaborate and impressive ceremonies we may feel sure, at all the occupied cities. Especially was this true of every fourth hotun, the katun-endings which from first to last throughout both the Old and the New Empires continued to be of greater importance than first, second, or third hotun-endings. For proof of this see the several maxima in figure 70 at 9.11.0.0.0, 9.13.0.0.0, 9.14.0.0.0, 9.15.0.0.0, 9.16.0.0.0, 9.17.0.0.0 and 9.18.0.0.0.

At first the hotun-endings were marked by stelæ exclusively, but later, as at Quirigua for example, low boulderlike stones were used, the so-called zoömorphs, and elsewhere even small altars, and finally, toward the end of the Old Empire, when the Maya were truly at their cultural zenith, their esthetic and intellectual apogee, whole temples were dedicated, especially at the katun-endings.¹

¹Examples of this are the dedication of Temple 10 at Piedras Negras in 9.12.0.0.0, of the Temples of the Cross, Foliated Cross, and Inscriptions at Palenque in 9.13.0.0.0, of Temple 21a and the Reviewing-Stand in the Western Court at Copan, and of Temple 10 at Yaxchilan in 9.17.0.0.0, of Temple 17 at Naranjo in 9.18.0.0.0, and of Temple 1 at Quirigua in 9.19.0.0.0.

At the very end of the Old Empire there is an obvious return to the first practice of commemorating only the katun-endings. No first, second, or third hotun-endings have been found at any of the Old Empire cities after 9.19.10.0.0, and the few that seem to have been occupied during the first two katuns of Cycle 10, the little group in the northeastern corner of Peten, Flores, Tikal, Nakum, Ucanul, and Benque Viejo, and Seibal in central Peten, only commemorated the katun-endings 10.1.0.0.0 and 10.2.0.0.0.

After the extinction of the Old Empire civilization, Maya culture poured out of the Old Empire region in two directions, south into the highlands of Guatemala and north into the plains of Yucatan. The custom we are examining just managed to reach the northern edge of the first region (Stelæ 1 and 2 at Quen Santo, see plate 1), but for some unknown reason could not, or at least did not, survive there. In the north, however, this practice fared better, and we have two lahuntun-endings declared on Initial Series monuments within the first century after the close of the Old Empire (*i. e.*, the Chichen Itza lintel and Stela 1 at Tulum). But coincident with the collapse of Initial Series dating in the New Empire, it would seem to have become restricted in its application principally, although probably not exclusively, at least at first,¹ to the katun-endings only.

As has been shown in the foregoing pages, we have archæologic proof of this in such monuments as Stela 9 at Mayapan, Stela 1 at Ichmul and the Cave of Loltun, as well as preconquest manuscript evidence thereof in the Codex Peresianus, and direct contemporary documentary corroboration therefor in the accounts of Nakuk Pech, Juan Josef Hoil (the redactor of the Chumayel chronicles), Landa, Cogolludo, and even Villagutierre Sotomayor, and the indirect evidence furnished by the passages quoted from the *u kahlay katunob* in the Books of Chilán Balam.

In closing this description of the hotun, it is perhaps well to point out that monuments were not erected exclusively at these times, as, for example, Stela 11 at Yaxchilan, which bears the date 9.16.1.0.0, and Stela 6 at Naranjo, erected in 9.17.1.0.0; but that the very great majority were can not be gainsaid.

It was one of the most important facts of ancient Maya life. It must have influenced and absorbed the activities of a great part of the population of every Maya city; and finally it must have determined not only the times for some of their most important feasts and ceremonies, but also profoundly affected their very religion as well. It was, in fine, the most fundamental phase of their religion and life of which we have archæologic evidence, and the persistence with which it prevailed, practically unchanged for more than 15 centuries (*i. e.*, down to 1697), is ample proof that it was also one of the most deep-rooted customs of their own times.

¹In addition to the lahuntun-endings on the Chichen Itza lintel and Stela 1 at Tulum, the writer found a Tun 11 ending on a column in the Temple of the High Priests' grave at Chichen Itza, 11.19.11.0.0 2 Ahau 18 Xul (see figure 76), and a Tun 13 ending in the Temple of the Initial Series at Holactun, either 10.9.13.0.0 2 Ahau 8 Yax or 11.2.13.0.0 2 Ahau 8 Cumhu, and possibly others.

APPENDIX VIII.

LIST OF MONUMENTS MARKING THE HOTUN-ENDINGS DURING THE OLD EMPIRE.

This Appendix contains a list of all known hotun-markers, including those at Copan; it is, in short, a concordance of all the examples of this type of Maya monument now known, and has been frequently cited in the synoptic headings in Chapters II, III, and IV for purposes of comparison. The writer believes it to be as complete as it is now possible to make it, although future investigation, particularly exploration in the two regions mentioned on page 439, *i. e.*, the eastern part of the State of Chiapas, Mexico, and the northern part of the Department of Peten, Guatemala, will doubtless greatly amplify it. Such exploration will certainly lead to the discovery of additional inscriptions from the Middle and Great Periods, while excavation, particularly at Uaxactun, Tikal, and other sites in the immediate vicinity, may be as confidently depended upon to yield additional texts, although fewer in number, dating from the Early Period.

The writer finds 165 different inscriptions on stelæ, altars, lintels, hieroglyphic steps and stairways, piers, tablets, and cornices which may now be included in this list of hotun-markers. Of these, 134 are surely deciphered as given, 21 probably so, and 10 very doubtfully so. Possibly as high as 150, and certainly not lower than 140, may be accepted as correctly deciphered. Of these 165 texts, the contemporaneous dates are declared by Initial Series in 72 cases (44 per cent.) and by Period Endings in 93 cases (56 per cent.).

The data pertaining to these texts are presented as follows: The successive hotun-endings from 9.0.0.0.0 to 10.6.10.0.0 appear in the first column. In the second column are given the names of the sites at which the corresponding monuments in the third column are found. The nature of the contemporaneous dates, *i. e.*, whether they are expressed by Initial Series or Period Endings, is given in the fourth column. When there are no monuments dating from any given hotun-ending, the last three columns for that particular hotun have no entries, as, for example, the first two hotun-endings in the list.

In some cases hotun-endings are recorded as secondary dates on monuments, but not as their contemporaneous dates, as for example, 9.0.0.0.0, the first hotun-ending in the list, which appears on several monuments, but nowhere as a contemporaneous date. It is obvious that no monuments can be referred to any given hotun-ending on such a basis, but in these cases a note indicates on what monuments such secondary non-contemporaneous dates have been found.

Dates probably, but not surely, correctly deciphered are indicated by a single interrogation point, thus (?), after the name of the corresponding monument in the third column, and dates very doubtfully deciphered, by the double interrogation point, thus (??).

The natural growth and expansion of the Old Empire civilization is clearly indicated in the following table. At first the hotun-markers are few and scattering, and, in fact, so continue until the close of the Early Period. Beginning with the Middle Period, however, they become more frequent and regular, increasing in these respects until the height of the Great Period, when the katun ending on 9.18.0.0.0 was commemorated at no less than nine different cities. After this latter date they decrease in frequency, ceasing temporarily between 9.19.15.0.0 and 10.0.15.0.0 inclusive, and finally (so far as the Old Empire was concerned) after 10.2.0.0.0.

List of Hotun-markers during the Old Empire.

EARLY PERIOD.			
Date.	Site.	Monument.	Kind of date.
9.0. 0.0.0 ¹			
9.0. 5.0.0.....			
9.0.10.0.0 ²	Tikal.....	Stela 8 (?).....	Period Ending.
9.0.15.0.0.....			
9.1. 0.0.0 ³			
9.1. 5.0.0.....			
9.1.10.0.0 ⁴	Copan.....	Stela 20 (?).....	Initial Series.
9.1.15.0.0.....			
9.2. 0.0.0.....	Tikal.....	Stela 9 (?).....	Period Ending.
9.2. 5.0.0.....			
9.2.10.0.0 ⁵	Copan.....	Stela 24.....	Initial Series.
9.2.15.0.0.....			
9.3. 0.0.0.....			
9.3. 5.0.0.....			
9.3.10.0.0.....			
9.3.15.0.0.....			
9.4. 0.0.0 ⁶			
9.4. 5.0.0.....			
9.4.10.0.0.....	Copan.....	Stela 15.....	Initial Series.
	Copan.....	Altar Q'.....	Period Ending.
	Copan.....	Stela 16 (??).....	Period Ending.
9.4.15.0.0.....			
9.5. 0.0.0.....			
9.5. 5.0.0.....	Piedras Negras.....	Stela 29 (??).....	Initial Series.
9.5.10.0.0.....			
9.5.15.0.0.....			
9.6. 0.0.0.....	Copan.....	Stela 17 (?).....	Initial Series.
9.6. 5.0.0.....			
9.6.10.0.0 ⁷	Copan.....	Stela 9.....	Initial Series.
9.6.15.0.0.....			
9.7. 0.0.0 ⁸	Copan.....	Stela 18 (?).....	Initial Series.
9.7. 5.0.0 ⁹			
9.7.10.0.0.....			
9.7.15.0.0.....			
9.8. 0.0.0.....			
9.8. 5.0.0.....			
9.8.10.0.0.....			

¹This important date, the beginning of the cycle during which the Maya reached their first great cultural efflorescence, is recorded, although not as a *contemporaneous* date, at several places: here at Copan on Stela 15 and 3 for example (see pp. 88, 89, and 157); again on the tablet in the Temple of the Cross at Palenque (see Morley, 1915, p. 228); and finally as the opening entry in the *u kahlay katunob* from the Books of Chilán Balam of Mani and Tizimin, according to the writer's correlation of Old and New Empire chronology (see Appendix II, p. 503).

²This is possibly the oldest contemporaneous hotun-ending known.

³This date is recorded by the Initial Series on the west side of Stela C at Quirigua, the contemporaneous date of which is shown by a Period Ending date to have been about 325 years later, *i. e.*, in 9.17.5.0.0. (See Morley, 1915, pp. 173-175, 179, note 1, 226.)

⁴This is probably the earliest contemporaneous date at Copan.

⁵This is the earliest *surely* deciphered hotun, lahuntun, or katun-ending known.

⁶On the tablet in the Temple of the Inscriptions at Palenque, the 10 katun-endings from 9.4.0.0.0 to 9.13.0.0.0 inclusive are recorded, the first as an Initial Series, the others as Period Ending dates, the last being the contemporaneous date of the temple. (See Morley, 1915, p. 84, note 1.)

⁷This date is also recorded by the Initial Series on Stela 1 at Tulum. The contemporaneous date of this monument, however, 10.6.10.0.0, just one cycle later, is expressed by a Period Ending date. (See Morley, 1916a, pp. 338, 339; *ibid.*, 1918a, pp. 274, 275.)

⁸This date also appears as a tun-ending on a square altar at Chinikihá (plate 1), although not as its contemporaneous date, the month-sign being the unusual dog-head variant of the month Kankin first deciphered by the writer in 1914, and the tun-sign "the winged-Cauac" variant, deciphered by the writer in 1918. (See Maler, 1901, plate 2, A-C.)

⁹This date is recorded as a Period Ending, although not the contemporaneous date, of the tablet in the Temple of the Inscriptions at Palenque. (See Maudslay, 1889-1902, vol. IV, plate 57.)

List of Hotun-markers during the Old Empire—continued.

EARLY PERIOD—continued.			
Date.	Site.	Monument.	Kind of date.
9.8.15.0.0 ¹	Piedras Negras.....	Stela 25.....	Period Ending.
9.9. 0.0.0.....	Copan.....	Stela 7.....	Initial Series.
9.9. 5.0.0.....	Copan.....	Stela E.....	Period Ending.
9.9.10.0.0.....	Copan.....	Stela P.....	Initial Series.
9.9.15.0.0.....			
9.10.0.0.0 ²	Naranjo.....	Reused lintel in Hier. Stairway.	Period Ending.
	El Pabellón.....	Stela 1.....	Initial Series.
MIDDLE PERIOD.			
9.10. 5.0.0.....	Altar de Sacrificios ...	Stela 5 (??).....	Period Ending.
	Piedras Negras.....	Stela 31 (??).....	Initial Series.
9.10.10.0.0 ³	Altar de Sacrificios...	Stela 4.....	Period Ending.
	Naranjo.....	Hieroglyphic Stairway (?)...	Initial Series.
	Palenque.....	Temple of the Sun.....	Period Ending.
9.10.15.0.0 ⁴			
9.11. 0.0.0.....	Copan.....	Stela 12.....	Period Ending.
	Copan.....	Stela 2.....	Period Ending.
	Copan.....	Stela 10 (?).....	Period Ending.
	Copan.....	Stela 19.....	Period Ending.
	Copan.....	Stela 23.....	Period Ending.
	Copan.....	Stela 13.....	Initial Series.
	Copan.....	Stela 3.....	Initial Series.
	Palenque.....	Palace, House C.....	Period Ending.
	Palenque.....	Slab.....	Period Ending.
9.11. 5.0.0.....	Yaxha.....	Stela 6 (?).....	Initial Series.
9.11.10.0.0.....	Piedras Negras.....	Stela 35 (?).....	Period Ending.
9.11.15.0.0.....	Copan.....	Stela 1.....	Period Ending.
	Copan.....	East Altar of Stela 5.....	Initial Series.
	Piedras Negras.....	Stela 36.....	Period Ending.
	Piedras Negras.....	Lintel 2.....	Period Ending.
9.12. 0.0.0.....	Copan.....	West Altar of Stela 5.....	Period Ending.
	Copan.....	Altar of Stela 1.....	Period Ending.
	Piedras Negras.....	Stela 37.....	Initial Series.
9.12. 5.0.0.....	Copan.....	Stela I.....	Period Ending.
9.12.10.0.0 ⁵	Copan.....	Stela 6.....	Initial Series.
9.12.15.0.0.....	Piedras Negras.....	Stela 6.....	Initial Series.
9.13. 0.0.0.....	Copan.....	Altar H'.....	Period Ending.
	Copan.....	Altar I'.....	Initial Series.
	Palenque.....	Temple of the Inscriptions...	Period Ending.
	Palenque.....	Temple of the Foliated Cross..	Period Ending.
	Palenque.....	Temple of the Cross (?).....	Period Ending.
	Palenque.....	Stela in front of the Temple of the Cross.....	Period Ending.
	Piedras Negras.....	Stela 8 (?).....	Period Ending.
	Tzendales.....	Temple of the Tablet.....	Period Ending.
9.13. 5.0.0.....	Piedras Negras.....	Stela 2.....	Initial Series.

¹This date also appears as the Initial Series of Stela 4 at Copan, although not the contemporaneous date of that monument. (See p. 357.)

²This date is also recorded on Slab 6 of the Hieroglyphic Stairway at Naranjo, but not as the contemporaneous date of that construction. (See Maler, 1908a, plate 27, c3.)

³It is possible that this date on the Hieroglyphic Stairway at Naranjo may not be contemporaneous, although the writer is inclined to accept it as such.

⁴This date is recorded by the Initial Series on Stela 12 and 2 at Copan, but in neither case is it probably the contemporaneous date of the monument. (See pp. 132, 135, 136, 160.)

⁵This date is also recorded by a Period Ending on Altar H', but the style of this monument, as well as the calculations in its inscription, are so closely connected with those of Altar I', the contemporaneous date of which is 9.13.0.0.0, that it appears necessary to regard the contemporaneous date of both as having been the same, namely, 9.13.0.0.0. (See pp. 186, 189, 193, 194.)

List of Hotun-markers during the Old Empire—continued.

MIDDLE PERIOD—continued.			
Date.	Site.	Monument.	Kind of date.
9.13.10.0.0 ¹	Copan	Stela J	Initial Series.
	Naranjo	Stela 22	Period Ending.
	Naranjo	Stela 24	Period Ending.
9.13.15.0.0	Piedras Negras	Stela 4	Initial Series.
	Naranjo	Stela 21	Period Ending.
	Piedras Negras	Stela 1	Initial Series.
9.14. 0.0.0	Altar de Sacrificios	Stela 7	Period Ending.
	Copan	Stela 5 (?)	Period Ending.
	Itsimté	Altar 1 (??)	Period Ending (?)
	Naranjo	Stela 23	Period Ending.
	Piedras Negras	Stela 3	Initial Series.
	Tikal	Stela 16	Period Ending.
	Uaxactun	Stela 1 (?)	Initial Series.
	Piedras Negras	Stela 5	Initial Series.
9.14. 5.0.0	Itsimté	Altar 2	Initial Series.
9.14.10.0.0 ²	Naranjo	Stela 31	Period Ending.
	Piedras Negras	Stela 7	Initial Series.
9.14.15.0.0 ³	Naranjo	Stela 18	Initial Series.
	Piedras Negras	Altar 1' (?)	Period Ending.
GREAT PERIOD.			
9.15. 0.0.0 ⁴	Copan	Stela A	Period Ending.
	Copan	Stela B	Initial Series.
	Copan	Altar S	Initial Series.
	Itsimté	Stela 5	Initial Series.
9.15. 5.0.0	Piedras Negras	Stela 11	Initial Series.
	Copan	Stela D	Initial Series.
	Piedras Negras	Stela 9	Initial Series.
9.15.10.0.0 ⁵	Itsimté	Stela 2	Initial Series.
	Piedras Negras	Stela 10	Initial Series.
9.15.15.0.0	Quirigua	Stela S	Initial Series.
	Yaxchilan	Altar near Structure 39	Period Ending.
	Piedras Negras	Altar 2'	Period Ending.
9.16. 0.0.0	Quirigua	Stela H	Initial Series.
	Seibal	Hieroglyphic Stairway	Period Ending.
	Uaxactun	Stela 2	Initial Series.
	Copan	Stela M	Initial Series.
9.16. 5.0.0	Piedras Negras	Stela 22	Initial Series.
	Quirigua	Stela J	Initial Series.
	Yaxchilan	Lintel 3	Period Ending.
	Copan	Stela N	Initial Series.
9.16.10.0.0	La Honradez	Stela 6 (??)	Initial Series.
	Quirigua	Stela F	Initial Series.

¹This date is also recorded as a Period Ending, in Date 21 of the Hieroglyphic Stairway here at Copan. (See pp. 256, 257.)

²This date also appears as a Period Ending on Stela F at Copan, although not the contemporaneous date of that monument. (See p. 354.)

³This date is also recorded as a Period Ending on Stela 4 at Copan, although not the contemporaneous date of that monument. (See p. 357.)

⁴This date appears on a number of monuments, although in no others is it the contemporaneous date: on Altar U at Copan (see pp. 304, 305), on Stela E at Quirigua (see Morley, 1915, pp. 235-239), on Stela F at Quirigua (see *ibid.*, 1915, pp. 239, 240), on Altar M at Quirigua (see *ibid.*, 1915, pp. 240-242), and on Altar 2' at Piedras Negras.

⁵This date appears on three wooden lintels from Temples I and III, and the Palace of the Five Stories at Tikal. (See Maudslay, 1889-1902, vol. III, plates 72, 74, 77, 78.)

List of Hotun-markers during the Old Empire—continued.

GREAT PERIOD—continued.			
Date.	Site.	Monument.	Kind of date.
9.16.10.0.0.—continued	Yaxchilan.....	Stela 1 ¹	Initial Series.
9.16.15.0.0. ²	Piedras Negras.....	Stela 16.....	Initial Series.
	Quirigua.....	Stela D.....	Initial Series.
9.17. 0.0.0.....	Copan.....	Altar G ₃	Period Ending.
	Copan.....	Altar Z.....	Period Ending.
	Copan.....	Rev. stand in Western Court.	Period Ending.
	Copan.....	Temple 21a.....	Period Ending.
	La Honradez.....	Stela 7.....	Initial Series.
	Nakum.....	Stela U.....	Period Ending.
	Piedras Negras.....	Stela 13.....	Initial Series.
	Quirigua.....	Stela E.....	Initial Series.
	Seibal.....	Stela 6.....	Period Ending (?).
	Yaxchilan.....	Lintel 31.....	Period Ending.
9.17. 5.0.0.....	Copan.....	Altar Q.....	Period Ending.
	Copan.....	Altar W'.....	Period Ending.
	Copan.....	Stela 11 (??).....	Period Ending.
	Copan.....	Temple 18 (??).....	Period Ending.
	Quirigua.....	Stela A.....	Initial Series.
	Quirigua.....	Stela C.....	Period Ending.
9.17.10.0.0.....	Ixkun.....	Stela 2 (?).....	Period Ending (?).
	Los Higos.....	Stela 1.....	Period Ending.
	La Honradez.....	Stela 1 (??).....	Initial Series.
	Naranjo.....	Stela 13.....	Initial Series.
	Naranjo.....	Stela 19.....	Period Ending.
	Quirigua.....	Zoömorph B.....	Initial Series.
9.17.15.0.0.....	La Mar.....	Stela 1.....	Period Ending.
	Quirigua.....	Zoömorph G.....	Initial Series.
9.18. 0.0.0.....	Aguas Calientes.....	Stela 1.....	Period Ending.
	Cancuen.....	Stela 2.....	Period Ending.
	Copan.....	Altar W.....	Period Ending.
	Copan.....	Fragment X' (??).....	Period Ending.
	Ixkun.....	Stela 1 ³	Initial Series.
	La Honradez.....	Stela 5 (?).....	Initial Series.
	Naranjo.....	Stela 14.....	Period Ending.
	Piedras Negras.....	Stela 14 (?).....	Period Ending.
	Quirigua.....	Zoömorph O.....	Initial Series.
	Seibal.....	Stela 12 (?).....	Period Ending.
9.18. 5.0.0.....	Cancuen.....	Altar 2.....	Period Ending.
	Copan.....	Altar G ₂	Period Ending.
	Piedras Negras.....	Stela 12.....	Initial Series.
	Quirigua.....	Zoömorph P.....	Initial Series.
9.18.10.0.0.....	Copan.....	Altar G.....	Period Ending.
	Ixkun.....	Stela 5 (?).....	Period Ending.
	La Honradez.....	Stela 4 (?).....	Initial Series.
	Naranjo.....	Stela 8.....	Initial Series.
	Naranjo.....	Stela 12.....	Period Ending.
	Naranjo.....	Stela 28.....	Period Ending.
	Quirigua.....	Stela I.....	Initial Series.
	Seibal.....	Stela 7.....	Period Ending.

¹The Initial Series actually recorded on this monument is 9.11.10.0.0 1 Ahau 3 Zip, the month-sign not appearing in its regular position after Glyph A of the Supplementary Series, but farther on in the text. This Initial Series number, however, will not lead to this terminal date, but a correction of 5 in the katun coefficient, that is, adding one bar to the two bars and a dot actually recorded, making the katun coefficient 16 instead of 11, will reach this date, and 9.16.10.0.0 may therefore be accepted as the correct reading for this Initial Series.

²This date is recorded as a Period Ending on, although not the contemporaneous date of, Altar G₃ at Copan. (See p. 325.)

³The katun coefficient of this Initial Series number is incorrectly recorded as 0 instead of 18. The terminal date, however, is fairly clear on the front, and even clearer on the back as 11 Ahau 18 Mac, and 9.18.0.0.0 may therefore be safely accepted as the contemporaneous date of this monument.

List of Hotun-markers during the Old Empire—continued.

GREAT PERIOD—continued.			
Date.	Site.	Monument.	Kind of date.
9.18.15.0.0.....	La Mar.....	Stela 2.....	Period Ending.
	Quirigua.....	Stela K.....	Initial Series.
9.19. 0.0.0.....	Naranjo.....	Stela 7.....	Period Ending.
	Naranjo.....	Stela 10.....	Period Ending.
	Quirigua.....	Temple 1.....	Initial Series.
	Uaxactun.....	Stela 7.....	Initial Series.
9.19. 5.0.0.....			
9.19.10.0.0.....	Nakum.....	Stela C.....	Period Ending.
	Naranjo.....	Stela 32.....	Period Ending.
9.19.15.0.0.....			
10.0. 0.0.0 ¹			
10.0. 5.0.0.....			
10.0.10.0.0.....			
10.0.15.0.0.....			
10.1. 0.0.0.....	Benque Viejo.....	Stela 1.....	Period Ending.
	Flores.....	Stela 2.....	Period Ending (?).
	Nakum.....	Stela D.....	Period Ending.
	Seibal.....	Stela 8.....	Period Ending.
	Seibal.....	Stela 9.....	Period Ending.
	Seibal.....	Stela 10.....	Period Ending.
	Seibal.....	Stela 11.....	Period Ending.
	Ucanal.....	Stela 3.....	Period Ending.
10.1. 5.0.0.....			
10.1.10.0.0.....			
10.1.15.0.0.....			
10.2. 0.0.0.....	Flores.....	Stela 1.....	Period Ending.
	Seibal.....	Stela 1.....	Period Ending.
	Tikal.....	Stela 11.....	Initial Series.

List of Hotun-markers during the New Empire.

COLONIZATION PERIOD (begins in 9.14.0.0.0).			
10.2. 5.0.0.....	Quen Santo.....	Stela 1.....	Initial Series.
10.2.10.0.0.....	Quen Santo.....	Stela 2.....	Initial Series.
	Chichen Itza.....	Temple of the Initial Series....	Period Ending.
10.2.15.0.0.....			
TRANSITIONAL PERIOD.			
10.3. 0.0.0.....			
10.3. 5.0.0.....			
10.3.10.0.0.....			
10.3.15.0.0.....			
10.4. 0.0.0.....			
10.4. 5.0.0.....			
10.4.10.0.0.....			
10.4.15.0.0.....			
10.5. 0.0.0.....			
10.5. 5.0.0.....			
10.5.10.0.0.....			
10.5.15.0.0.....			
10.6. 0.0.0.....			
10.6. 5.0.0.....			
10.6.10.0.0.....	Tulum.....	Stela 1 (?).....	Period Ending.

¹Curiously enough, although it is recorded on a number of different monuments as a prophetic date, as, for example, on Stelæ J and 8 and Altar S at Copan (see pp. 197, 198, 342, 343, and 227-229, respectively), on Altar 1 at Piedras Negras, on Stela 11 at Seibal (see Morley, 1915, pp. 230, 231), and on Zoömorph G at Quirigua (see *ibid.*, 1915, pp. 229, 230), this important period-ending has not yet been found anywhere as a contemporaneous date.

APPENDIX IX.

THE PROVENANCE AND DATES OF THE COPAN MONUMENTS.

NOTE.—The monuments marked with asterisks, thus, Stela E*, do not have their contemporaneous dates expressed by their corresponding Initial Series dates but by subsequent Period Ending dates. Since such inscriptions in every case begin with Initial Series, however, they have been classified as such in column 4.

I. THE MONUMENTS OF THE EARLY PERIOD.				
Monument.	Provenance.	Date.	Kind of date.	Class.
Altar J'.....	Group 12.....	9.0. 0. 0. 0 to 9.5.0. 0.0.....		
Altar K'.....	Group 12.....	9.0. 0. 0. 0 to 9.5.0. 0.0.....		
Altar L'.....	Group 9.....	9.4. 0. 0. 0 to 9.6.0. 0.0.....		
Altar M'.....	Group 9.....	9.4. 0. 0. 0 to 9.6.0. 0.0.....		
Altar Q'.....	Group 9.....	9.4.10. 0. 0 (?).....	Period Ending.....	
Altar P'.....	Group 9.....	9.0. 0. 0. 0 to 9.5.0. 0.0.....		
Altar X.....	Group 8.....	9.5.19.12.18 (?).....	Calendar Round.....	
Altar Y.....	Main Structure.....	9.7. 1. 7. 6 (?).....	Calendar Round.....	
Altar A'.....	Main Structure.....	9.3. 0. 0. 0 to 9.7.0. 0.0.....		
Stela 22.....	Group 9.....	9.3. 0. 0. 0 to 9.5.0. 0.0.....	Initial Series (?).....	I
Stela 25.....	Group 9.....	9.2.10. 0. 0 (?).....	Initial Series (?).....	I
Stela 20.....	Group 9.....	9.1.10. 0. 0 (?).....	Initial Series.....	3
Stela 24.....	Group 9.....	9.2.10. 0. 0.....	Initial Series.....	2
Stela 16.....	Main Structure.....	9.4. 9.17. 0 or 9.7.2.12.0.....	Initial Series.....	2
Stela 15.....	Group 9.....	9.4.10. 0. 0.....	Initial Series.....	3
Stela 17.....	Main Structure.....	9.6. 0. 0. 0 (?).....	Initial Series.....	2
Stela 9.....	Group 10.....	9.6.10. 0. 0.....	Initial Series.....	3
Stela 21.....	Group 9.....	9.6. 0. 0. 0 to 9.7.0. 0.0.....	Initial Series.....	3
Stela 18.....	Group 9.....	9.7. 0. 0. 0 (?).....	Initial Series.....	4
(Inscribed peccary skull).....	Main Structure.....	9.7. 8. 0. 0.....	Period Ending.....	
Stela 7.....	Group 9.....	9.9. 0. 0. 0.....	Initial Series.....	4
Stela E*.....	Main Structure.....	9.9. 5. 0. 0.....	Initial Series.....	4
Stela P.....	Main Structure.....	9.9.10. 0. 0.....	Initial Series.....	4
Fragments V'.....	Group 9.....	Early Period.....		
Fragment S'.....	Main Structure.....	Early Period.....		
II. THE MONUMENTS OF THE MIDDLE PERIOD.				
Stela 12*.....	Group 3.....	9.11. 0. 0.0.....	Initial Series.....	3
Stela 2*.....	Main Structure.....	9.11. 0. 0.0.....	Initial Series.....	4
Stela 10.....	Group 12.....	9.10.19.13.0.....	Initial Series.....	3
Stela 19.....	Group 13.....	9.10.19.15.0.....	Initial Series.....	3
Stela 23*.....	Group 1.....	9.11. 0. 0.0.....	Initial Series.....	4
Stela 13.....	Group 2.....	9.11. 0. 0.0.....	Initial Series.....	3
Stela 3.....	Main Structure.....	9.11. 0. 0.0.....	Initial Series.....	5
Stela 1*.....	Main Structure.....	9.11.15. 0.0.....	Initial Series.....	4
East Altar of Stela 5.....	Group 8.....	9.11.15. 0.0.....	Initial Series.....	
West Altar of Stela 5*.....	Group 8.....	9.12. 0. 0.0.....	Initial Series.....	
Altar of Stela 1*.....	Main Structure.....	9.12. 0. 0.0.....	Initial Series.....	
Stela I*.....	Main Structure.....	9.12. 5. 0.0.....	Initial Series.....	4
Stela 6.....	Group 8.....	9.12.10. 0.0.....	Initial Series.....	4
Altar K.....	Main Structure.....	9.12.16. 7.8.....	Initial Series.....	
Altar H'*.....	Main Structure.....	9.13. 0. 0.0.....	Initial Series.....	
Altar I'.....	Main Structure.....	9.13. 0. 0.0.....	Initial Series.....	
Stela J.....	Main Structure.....	9.13.10. 0.0.....	Initial Series.....	3
Stela 5*.....	Group 8.....	9.13.15. 0.0 or 9.14.0.0.0.....	Initial Series.....	5
Fragment Y'.....	Group 8.....	Middle Period.....	Initial Series (?).....	

III. THE MONUMENTS OF THE GREAT PERIOD.				
Monument.	Provenance.	Date.	Kind of date.	Class.
Stela A*	Main Structure.....	9.15. 0. 0. 0.....	Initial Series.....	4
Stela B.	Main Structure.....	9.15. 0. 0. 0.....	Initial Series.....	4
Altar S.	Group 9.....	9.15. 0. 0. 0.....	Initial Series.....	
Stela D.	Main Structure.....	9.15. 5. 0. 0.....	Initial Series.....	6
Hier. Step of Mound 2	Main Structure.....	9.15.17. 0. 0 (?).....	Period Ending.....	
Hier. Stairway of Mound 26.....	Main Structure.....	9.16. 5. 0. 0.....	16 Initial Series.....	
Temple 26.....	Main Structure.....	9.16. 5. 0. 0 (?).....	Initial Series (?).....	
Stela M.	Main Structure.....	9.16. 5. 0. 0.....	Initial Series.....	6
Stela N.	Main Structure.....	9.16.10. 0. 0.....	Initial Series.....	5
Altar L.	Main Structure.....	9.16.11. 0. 5.....	Calendar Round.....	
Altar B'	Main Structure.....	9.16.10. 0. 0 to 9.17.0.0.0 (?)...	Calendar Round.....	
Altar C'	Main Structure.....	9.16.10. 0. 0 to 9.17.0.0.0 (?)...	Calendar Round (?).....	
Altar D'	Main Structure.....	9.16.13. 9. 0 (?).....	Calendar Round.....	
Altar V.	Main Structure.....	9.16.12. 5.17.....	Calendar Round.....	
Altar R.	Main Structure.....	9.16.12. 5.17.....	Calendar Round.....	
Altar U.	Group 9.....	9.16.12. 5.17.....	Calendar Round.....	
Temple 11.....	Main Structure.....	9.16.12. 5.17.....	2 Initial Series.....	
Temple 22.....	Main Structure.....	9.16.12. 5.17 to 9.17.0.0.0.....	Calendar Round.....	
Temple 21a.....	Main Structure.....	9.17. 0. 0. 0.....	Period Ending.....	
Rev. stand in West- ern Court.....	Main Structure.....	9.17. 0. 0. 0.....	Period Ending.....	
Altar Z.	Main Structure.....	9.17. 0. 0. 0.....	Period Ending.....	
Altar G ₃	Main Structure.....	9.17. 0. 0. 0.....	Period Ending.....	
Altar Q.	Main Structure.....	9.17. 5. 0. 0.....	Period Ending.....	
Altar W'	Group 5.....	9.17. 5. 0. 0.....	Period Ending.....	
Altar T.	Group 9.....	9.17.12. 5.17.....	Calendar Round.....	
Fragment E'	Group 9.....	9.17.12. 5.17 (?).....	Initial Series.....	
Stela 8.	Group 10.....	9.17.12. 6. 2.....	Calendar Round.....	2
Stela C.	Main Structure.....	9.17.12. 0. 0.....	Period Ending.....	5
Stela H.	Main Structure.....	9.17.12. 0. 0.....	Period Ending.....	6
Stela F.	Main Structure.....	9.17.12.13. 0.....	Calendar Round.....	6
Stela 4*	Main Structure.....	9.17.12.13. 0.....	Initial Series ¹	6
Altar W.	Main Structure.....	9.18. 0. 0. 0.....	Period Ending.....	
Altar G ₂	Main Structure.....	9.18. 5. 0. 0.....	Period Ending.....	
Altar G ₁	Main Structure.....	9.18.10. 0. 0.....	Period Ending.....	
Fragment X'	Main Structure (?) ..	9.18. 0. 0. 0 (?).....		
Stela 11.	Main Structure.....	9.17. 5. 0. 0 (?).....	Period Ending (?).....	6
Altar O'	Main Structure.....	Great Period.....		
Temple 18.....	Main Structure.....	9.16.14.16. 6 or 9.17. 5. 0.0 (?)		
Altar F'	Main Structure.....	9.17. 4. 1.11 (?).....	Calendar Round.....	
Altar G'	Main Structure.....	9.15. 4.17. 1 or 9.17.17.12.1 (?)	Calendar Round.....	
Altar N'	Main Structure.....	Great Period.....		
Altar T'	Group 10.....	Great Period.....		
Altar U'	Group 9.....	Great Period.....		
Shrine R'	Group 7.....	Great Period (?).....		
Fragment Z'	Group 4.....	Great Period.....		

I. Monuments of the Early Period.....	25
II. Monuments of the Middle Period.....	19
III. Monuments of the Great Period.....	45
Total.....	89

¹This makes a total of 59 Initial Series at Copan exclusive of what may have been destroyed by the collapse of the Hieroglyphic Stairway, but inclusive of the very doubtful Initial Series on Temple 26.

APPENDIX X.

LIST OF THE DAY-SIGNS AND MONTH-SIGNS FOUND IN THE COPAN INSCRIPTIONS.

The following list of the day and month-signs found in the inscriptions of Copan is nearly, although not quite, exhaustive. It is believed to be complete for all the texts described in Chapters II, III, and IV, with the single exception of the Hieroglyphic Stairway of Mound 26, the utterly ruinous condition of which makes it impossible to identify and classify all of its day and month-signs. Of this important text, the longest in the *Corpus Inscriptionum Mayarum*, only such day and month-signs as occur in the 28 dates described in pages 237-274 are included below. Further study of the disconnected fragments would doubtless yield other identifiable day and month-signs, but it would in no way alter the great preponderance of the day-sign Ahau noticeable below, and no attempt has been made to include the day and month-signs on these fragments.

Nor has any attempt been made to include the signs for Ahau and Imix when these occur in passages other than where they denote specific days, which is not infrequently the case. These two characters doubtless had other meanings. Thus, for example, in at least two inscriptions, Stela C (north side) at Quirigua,¹ and Stela 1² at Piedras Negras, the Ahau-sign *inverted* is used as a sign for the kin or day, the lowest unit of the Maya chronological system. Again, in two other inscriptions, Stela 1 at Aguas Calientes and Stela 2 at Cancuen, neither of which has been published, Imix is the main part of the sign for the month Mac, as in the Dresden Codex.³ On Altar S here at Copan it has already been suggested (page 229) that a combination of the two signs may indicate the close of one time-period and the beginning of the next. Such uses as the foregoing clearly lie without the range of day-signs proper, and, as noted above, have not been included in the following list.

Of the 158 day-signs included in this list, 104, or very nearly 60 per cent., are Ahau; this is to be explained by the fact that all units of Maya chronology above the kin ended on some day Ahau, and the preponderance of period-endings over all other kinds of Maya dates accounts for the great majority of the day-signs recorded being Ahau.

Three day-signs, Imix, Akbal, and Ix, have not been found in the Copan inscriptions at all, although they are by no means unknown elsewhere, particularly Imix, which is fairly common.

All of the 19 divisions of the haab are represented in the Copan inscriptions except Uayeb, the closing period, and so far as the writer is aware, the sign for this month occurs only thrice in the *Corpus Inscriptionum Mayarum*—twice at Palenque, in the Temple of the Foliated Cross (see Maudslay, 1889-1902, vol. IV, plate 80, D8) and in the Temple of the Inscriptions (*ibid.*, plate 59, Q3), and once at Naranjo (see Maler, 1908, plate 30, 1, second glyph on the staff, and Morley, 1909, p. 549). This period was composed of 5 days, and, as compared with all the other divisions of the haab, the 18 months of 20 days each, it was only quarter as long as any one of them. Therefore, in the very nature of the case, Uayeb should be found on an average, only one-fourth as many times as any other division of the haab. As a

¹See Maudslay, 1889-1902, vol. II, plate 19, Glyph *ε*.

²See Maler, 1901, plate 12, F3.

³See Bowditch, 1910, plate 8.

matter of fact, however, its actual occurrence is very much less even than this, and it almost seems as though there had been a deliberate attempt to refrain from recording this particular month in the inscriptions.

Says Pío Pérez in speaking of these 5 days:

"Some call them *u yail kin*, or *u yail haab*, which may be translated, the sorrowful and laborious days or part of the year; for they [the Maya] believed that in them occurred sudden deaths and pestilences, and that they were diseased by poisonous animals, or devoured by wild beasts, fearing that if they went into the field to their labors, some tree would pierce them, or some other kind of misfortune happen to them."¹

This belief alone may have been sufficient to account for the observed rarity with which Uayeb appears in the inscriptions, very much less in fact than any other division of the haab, even discounting its shorter length.

In the following table the first and third columns give the names of the monuments on which the day and month-signs will be found, and the second and fourth columns give their exact positions on the monuments after the method of glyph designation described in Chapter I, page 50.

List of the Day-signs in the Copan Inscriptions.

Day-sign	Monument.	Glyph.	Day-sign.	Monument.	Glyph.
<i>Ahau</i> ..	Altar K'	One end (?)	<i>Ahau</i> ..	Stela 6.	B7a.
	Altar X.	H2		Altar H'	Mb, l. h.
	Stela 25.	Lower left corner.		Altar I'	Hb, u. h.
	Stela 24.	B5.		Altar I'	1a, u. h.
	Stela 16.	c3b.		Stela Jw.	I.
	Stela 15.	B6.		Stela Jw.	14, u. h.
	Inscribed peccary skull.	A1.		Stela Jw.	29b.
	Stela 9	B5.		Stela Jw.	31.
	Stela 7	B5a.		Stela Jn.	B1a, l. h.
	Stela E.	C2, l. h.		Stela 5	B6, l. h.
	Stela E.	C13, l. h.		Stela An.	A4b.
	Stela E.	D10, u. h.		Stela Aw.	C2a.
	Stela E.	D12, l. h.		Stela Aw.	C11b.
	Altar of Stela E.	F1b.		Stela Aw.	C12b.
	Stela P.	A5a.		Stela B.	A7.
	Stela 12.	B5.		Altar S.	Ea.
	Stela 12.	C10.		Altar S.	Ha.
	Stela 2	B5b.		Hier. Step, Mound 2.	Mb.
	Stela 2	C5b.		Altar W.	A.
	Stela 10.	A9a.		Hieroglyphic Stairway ..	Step D, db.
	Stela 19.	C2.		Hieroglyphic Stairway ..	Step O, db.
	Altar of Stela 19.	B.		Hieroglyphic Stairway ..	Step R, Ba.
	Stela 23.	E11b.		Hieroglyphic Stairway ..	Step S, M.
	Stela 23.	G7.		Hieroglyphic Stairway ..	Date 21, B.
	Stela 13.	B8.		Hieroglyphic Stairway ..	Date 22, cb.
	Stela 13.	Next to last glyph.		Stela M.	B2b.
	Stela 3	B6b.		Stela M.	B9b, l. h.
	Collar of Stela 3.	F.		Stela N.	A7.
	Stela 1	C1.		Stela N.	B16.
	Stela 1	D6a.		Altar D'	A.
	East Altar of Stela 5.	Ka		Altar R.	J2.
	West Altar of Stela 5.	N2a, l. h.		Altar U.	N4a.
	West Altar of Stela 5.	O1b.		Altar U.	O1.
	Altar of Stela 1.	1a.		Temple 11.	H4.
	Stela I.	B5b.		Temple 21a.	E.
	Stela I.	C1a.		Temple 21a.	1b.
	Altar of Stela I.	cb.		Temple 21a.	ob.
	Altar of Stela I.	Ea.		Rev. stand West. Court	A4.
	Stela 6.	B4b.		Rev. stand West. Court	qb.

¹See Stephens, 1843, vol. 1, p. 437, and Landa, 1864, p. 384.

List of the Day-signs in the Copan inscriptions—continued.

Day-sign.	Monument.	Glyph.	Day-sign.	Monument.	Glyph.
<i>Ahau</i> ...	Rev. stand West. Court	U.	<i>Lamat</i> ...	Altar K.....	c2.
	Rev. stand West. Court	E'4.		Stela Je.....	27.
	Altar Z.....	B2.		Hieroglyphic Step,	
	Altar G ₃	A1.		Mound 2.....	G2.
	Altar G ₃	A2.		Hieroglyphic Stairway..	Step D, <i>sa</i> .
	Altar Q.....	B3.		Hieroglyphic Stairway..	Step E, <i>db</i> .
	Altar Q.....	D6.		Hieroglyphic Stairway..	Date 24, <i>gb</i> .
	Altar W'.....	B1b.		Hieroglyphic Stairway..	Gordon 1902, pl.
	Stela 8.....	G1.			13, D, <i>ca</i> .
	Stela C.....	A2b.	<i>Muluc</i> ...	Temple 22.....	A, u. h.
	Stela C.....	A7b.		Altar H'.....	da, l. h.
	Stela C.....	A9a.		Hieroglyphic Stairway..	Step I, <i>q</i> .
	Stela C.....	B2b.		Hieroglyphic Stairway..	Step K, <i>ab</i> .
	Stela C.....	B7a.		Hieroglyphic Stairway..	Step L, <i>a</i> .
	Stela C.....	B11a.	<i>Oc</i>	Hieroglyphic Stairway..	Step P, <i>ma</i> .
	Stela C.....	B14a.		Hieroglyphic Stairway..	Step Q, <i>mb</i> .
	Stela H.....	A1a.	<i>Chuen</i> ...	Altar of Stela I.....	ja.
	Stela F.....	B1.		Altar F'.....	B1b, u. h.
	Stela 4.....	A3a.	<i>Eb</i>	Altar U.....	O3.
	Stela 4.....	A6a.		Temple 22.....	P2.
	Stela 4.....	A7a.	<i>Ben</i>	Altar Q.....	C1.
	Altar G ₂	A1.	<i>Ix</i>	Not represented.	
	Altar G ₂	A2a.	<i>Men</i>	Pedestal of Stela N.....	A1.
	Altar G ₁	A1.		Pedestal of Stela N.....	B1.
	Stela 11.....	A1.	<i>Cib</i>	Temple 11.....	H7.
	Temple 18.....	A1.	<i>Caban</i> ...	Hieroglyphic Stairway..	Date 27, <i>b</i> .
<i>Imix</i> ...	Not represented.			Altar V.....	C2.
<i>Ik</i>	Altar U.....	L5.		Altar R.....	A1.
	Stela 8.....	D1.		Altar U.....	A1.
<i>Akbal</i> ...	Not represented.			Altar U.....	K1.
<i>Kan</i> ...	Altar of Stela 13.....	A.		Temple 11.....	A1.
	Pedestal of Stela N.....	D1.		Temple 11.....	B6.
	Altar Q.....	E6, u. h.		Altar Q.....	Front, top glyph.
	Altar W'.....	B2b.		Altar Q.....	A1.
<i>Chicchan</i>	Altar H'.....	1a, u. h.		Altar T.....	Front, head of left figure.
	Hieroglyphic Stairway..	Step E, <i>sb</i> (?)			Front, head of right figure.
	Hieroglyphic Stairway..	Step F, <i>db</i> .		Altar T.....	
	Hieroglyphic Stairway..	Date 26, fig. 41.		Stela 8.....	A1.
<i>Cimi</i> ...	Altar Y.....	A1.	<i>Ernab</i> ...	Altar X.....	A1.
	Hieroglyphic Stairway..	Date 23, <i>db</i> .	<i>Cauac</i> ...	Hieroglyphic Stairway..	Step H, <i>a</i> (?)
	Altar V.....	A.		Hieroglyphic Stairway..	Step H, <i>o</i> (?)
<i>Manik</i> ...	Hieroglyphic Stairway..	Date 15, <i>db</i> .		Hieroglyphic Stairway..	Step K, <i>eb</i> .
<i>Lamat</i> ...	Stela 23.....	H4.			
	Stela I.....	C7a.			

List of the Month-signs in the Copan inscriptions.

Month-sign.	Monument.	Glyph.	Month-sign.	Monument.	Glyph.
<i>Pop</i>	Stela P.....	B6b.	<i>Uo</i>	Stela E.....	C3.
	Altar of Stela I.....	jb.		Altar of Stela E.....	E2b.
	Hieroglyphic Stairway	Step Q, <i>a</i> .		Altar of Stela I.....	eb.
	Pedestal of Stela N.....	B2.		Altar I'.....	eb, l. h.
	Altar U.....	B1.		Altar Q.....	E6, l. h.
	Altar U.....	P3.		Stela C.....	B7b.
	Temple 11.....	F8 (?)		Stela C.....	B11b.
	Altar G ₃	B1.	<i>Zip</i>	Stela Jn.....	B1b, l. h.
	Altar F'.....	B1b, l. h.		Altar S.....	Hb.
<i>Uo</i>	Altar Y.....	B1.		Stela N.....	A15.

List of the Month-signs in the Copan inscriptions—continued.

Month-sign.	Monument.	Glyph.	Month-sign.	Monument.	Glyph.
<i>Zip</i> ...	Altar R.....	K1.	<i>Yax</i> ...	Stela 4.....	A7b.
	Rev. stand West. Court	B1.	<i>Zac</i> ...	Altar B'.....	B1 (?).
	Rev. stand West. Court	V1.		Altar D'.....	Db (?).
	Altar T.....	Front, in hand of right figure.		Temple 11.....	H7.
<i>Zotz</i> ...	Stela 8.....	A2.		Altar W'.....	CI (?).
	Stela 8.....	H1.		Stela 4.....	A6b.
	Stela 8.....	E3.	<i>Ceh</i> ...	Altar G1.....	B1.
	Stela 7.....	B7a.		Stela 15.....	D6.
<i>Tzec</i> ...	Stela 1.....	C2.		Stela 12.....	D10.
	Stela 6.....	B6b.		Stela 2.....	C6a.
	Altar H'.....	Na, u. h.		Stela 23.....	F1.
	Altar I'.....	1b, u. h.		Stela 13.....	A9.
<i>Xul</i> ...	Hier. Step, Mound 2...	H2.		Stela 3.....	B8a, u. h.
	Hieroglyphic Stairway	Step D, 1b.		Stela 1.....	C1b.
	Stela M.....	A3a.		Altar U.....	N4b.
	Stela 20.....	B9.		Altar G2.....	B1.
<i>Yaxkin</i> ...	Stela E.....	D10, l. h.	<i>Mac</i> ...	Temple 11.....	H8 (?).
	Hieroglyphic Stairway	Date 23, E.		Stela 12.....	A9.
	Hieroglyphic Stairway	Step R, Bb.		Hieroglyphic Stairway	Step D, sb.
	Hieroglyphic Stairway	Step S, N.		Hieroglyphic Stairway	Step E, ha.
<i>Mol</i> ...	Altar of Stela I.....	Da.		Stela F.....	A2.
	Hieroglyphic Step, Mound 2.....	Nb.	<i>Kankin</i> ...	Altar W.....	B.
	Stela 16.....	C3a.	<i>Muan</i> ...	Altar X.....	B1.
	Hieroglyphic Stairway	Step H, Pb.		Stela A.....	C2b.
<i>Chen</i> ...	Stela 10.....	A9b.		Hieroglyphic Stairway	Date 15, Eb.
	Stela 23.....	I4.		Hieroglyphic Stairway	Step K, Bb.
	West Altar of Stela 5...	N2b.		Hieroglyphic Stairway	Step L, cb.
	Altar of Stela 1.....	1b.		Altar Q.....	D1.
<i>Yax</i> ...	Pedestal of Stela N...	A2.		Stela C.....	A9b.
	Altar V.....	B.		Stela C.....	B14b.
	Altar Q.....	B1.	<i>Pax</i> ...	Stela H.....	A1b.
	Altar Q.....	A4.		Stela 9.....	B8.
<i>Uayeb</i> ...	Stela 1.....	D6b.	<i>Kayab</i> ...	Stela 5.....	B7a, u. h.
	East Altar of Stela 5...	1b.		Stela 15.....	C3.
	West Altar of Stela 5...	D2a.		Altar H'.....	Lb, u. h.
	Altar H'.....	cb, u. h.		Stela 5.....	A8, u. h.
<i>Uayeb</i> ...	Hieroglyphic Stairway	Gordon, 1902, pl. 12, L, sixth block.		Hieroglyphic Stairway	Step E, ra.
	Altar V.....	D2b.		Hieroglyphic Stairway	Step F, 1a.
	Altar R.....	B1.		Altar Q.....	E1.
	Altar U.....	L1.		Altar W'.....	A2.
<i>Uayeb</i> ...	Altar U.....	M1.	<i>Pax</i> ...	Stela C.....	A3a.
	Temple 11.....	B1b.	<i>Kayab</i> ...	Stela C.....	A8a.
	Temple 11.....	B7.		Stela H.....	A1b.
	Altar Q.....	Front, bot'm glyph.	<i>Pax</i> ...	Stela 9.....	B8.
<i>Uayeb</i> ...	Altar T.....	Front, in hand of left figure.	<i>Kayab</i> ...	Stela 5.....	B7a, u. h.
	Stela 8.....	B1.		Stela 15.....	C3.
	Altar of Stela 19.....	C.		Altar H'.....	Lb, u. h.
	Stela D.....	A5b.		Stela 5.....	A8, u. h.
<i>Uayeb</i> ...	Altar K.....	G2.		Hieroglyphic Stairway	Step E, ra.
	Stela A.....	B12a.		Hieroglyphic Stairway	Step F, 1a.
	Stela B.....	A8.		Altar Q.....	E1.
	Altar S.....	Eb.		Altar W'.....	A2.
<i>Uayeb</i> ...	Altar U.....	P1.	<i>Pax</i> ...	Stela C.....	A3a.
			<i>Kayab</i> ...	Stela C.....	A8a.
				Stela 25.....	Lower right corner.
				Stela 23.....	F8.
<i>Uayeb</i> ...			<i>Cumhu</i> ...	Altar I'.....	Ha, l. h.
				Stela Jw.....	33.
				Stela Je.....	12, u. h.
				Stela A.....	A9b.
<i>Uayeb</i> ...				Hieroglyphic Stairway	Date 21, ca.
				Hieroglyphic Stairway	Step P, ra.
				Temple 21a.....	Pa.
				Rev. stand West. Court	R1.
<i>Uayeb</i> ...				Rev. stand West. Court	E'5.
				Altar Z.....	A3.
				Altar G3.....	B2.
				Stela C.....	B3a.
<i>Uayeb</i> ...			<i>Uayeb</i> ...	Not represented.	

APPENDIX XI.

A DESCRIPTION OF THE RUINS OF COPAN, BY JUAN GALINDO, IN 1834.¹

REPORT OF THE SCIENTIFIC COMMISSION APPOINTED TO MAKE A SURVEY OF THE ANTIQUITIES OF COPAN IN COMPLIANCE WITH A DECREE DATED JANUARY 15, 1834, ISSUED BY DR. MARIANO GÁLVEZ, COMMANDER-IN-CHIEF OF THE STATE OF GUATEMALA.

COPAN, June 19, 1834.

*Citizen Secretary of the General Office of the
Supreme Government of the State of Guatemala:*

I have the honor to submit to you the following statement of the investigations which I have been able to carry out among the ruins of this old city and the neighboring country, in compliance with the mission by which I was honored by that Supreme Government on the 16th of January ultimo.

It is impossible for us to fix in an accurate manner the beginning of the existence of the planet which we inhabit; nevertheless, we can clearly see that since that epoch it has undergone great changes. Water used to cover what is now dry land, whole races of gigantic creatures have disappeared, and tropical animals inhabited the boreal regions.

Of all the living species of the globe, that to which we belong is the one which particularly attracts our attention. Man appears in six different races, namely, the American Indian, the Esquimaux, the Tartar, the Malay, the African, and the Caucasian, and among all these the oldest is undoubtedly the Indian. The mistaken and foolish pride of the descendants of the Caucasian makes them claim

¹The manner in which the original manuscript of the Galindo report on the ruins of Copan fell into the writer's hands after the first chapter of this book was already in galley proof is so unusual as to warrant a brief account of this timely discovery by way of a preface to the report itself, a translation of which into English is given here.

Colonel Juan Galindo was an officer in the service of the government of Central America, and previous to his visit to Copan in 1834 had been commandant at Flores, in the Department of Peten, where he had also undertaken other archaeological investigations. (See page 18.)

In April 1834, he was sent to Copan by the government of Central America to make an official report on the ruins, and while there he wrote several letters to scientific societies and periodicals both in Europe and America, notably to *The London Literary Gazette and Journal of Belles Lettres, Arts and Sciences* (see Galindo, 1835); *The American Antiquarian Society* (see Galindo, 1835a); and *The Société de Géographie de Paris* (see Galindo, 1836 and 1836a).

All three of these letters were written under the same date, June 19, 1834 (the same date as that of his report, see above), and in the one to the American Antiquarian Society he states that he was engaged in the preparation of a report which "the Government of Central America intends publishing" (Galindo, 1835a, p. 545).

This report, however, never seems to have been published, and its existence was only known through the above letters. Indeed, after a protracted search for it in the government archives in Guatemala City, during which the writer enlisted the aid of his friend, the Licenciado Don Adrián Recinos, Undersecretary for Foreign Affairs in the government of Guatemala, he reluctantly reached the conclusion that it had been destroyed in one of the many revolutions which had swept over Guatemala since Galindo's time, and in Chapter I of the original manuscript of this volume had so stated.

Last summer (August 1919), during the course of a visit to Baltimore, where Mr. William Gates, of Point Loma, California, then had his large collection of Maya manuscripts housed, the latter placed in the writer's hands a folio manuscript of 46 pages in Spanish, which he said he had received from abroad several years ago.

This manuscript proved to be none other than the long-lost original of the Galindo report on his mission to Copan, written in Galindo's own handwriting at Copan on June 19, 1834. It was directed to Dr. Mariano Gálvez, then Commander-in-Chief of the State of Guatemala, and the 25 figures, which had formerly accompanied it—maps, drawings of the monuments, etc., direct reference to which is frequently made in the text of the report—had been removed before it came into the possession of Mr. Gates.

Where this report had lain hidden all those 80 years, and how it came into the hands of the collector from whom it was purchased by Mr. Gates, it has been impossible to ascertain, but the writer regards it as a peculiarly happy coincidence that it was "rediscovered" in the Gates collection during the past summer, and that the owner has graciously consented to its publication here for the first time.

the greatest antiquity, when, in reality, they are the youngest. In a comparatively recent epoch they migrated from the Caucasian Mountains, took possession of Europe, and have been able to spread themselves throughout the greater part of America, and, aided by the strength of their youth and talent, they are now invading Asia and Africa. The Indian race, on the contrary, is in a decrepit old age, having passed many centuries ago through youth, civilization, and even decadence.

The North Americans solved the problem by beheading the unfortunate natives of the continent, or driving them away to the west, where they gradually perished.¹ The new governments of that part of America that formerly was Spanish admitted them into their societies and endeavored to have them share the benefits of civilization; but this policy, though it honored its authors, will be useless. The Indian race is in the last centuries of its age, and soon will disappear from the earth.

As a general rule, power and civilization travel westward. Looking for their origin toward the East, we go from France to Greece, from the latter to Egypt, to China, and, finally, we come to America in the farthest eastern end. China, the oldest nation of the Trans-Pacific Hemisphere, is about to disappear, and perhaps will become a colony of a far-distant island. The Indian race, which was the ancestor of China or Tartary in the evolution of civilization, has in a greater degree than China reached an old age incapable of regeneration. We see this clearly in Central America. The extensive Mosquito Coast, inhabited by natives who are entirely free from foreign domination, surrounded by civilized colonies and states, and in spite of the fact that the English authorities have endeavored to educate the children of their leading men, that people are still in a state of most degrading barbarism.

It is necessary to consider the Indian race in olden times in order to render to it the respect it deserves; it is necessary to state other facts in order to destroy the fullest vanity of the white or Caucasian race of being the mother of the Indian race or the origin of its civilization. We have seen that this is, by analogy, the oldest human species of the globe; if we admit the blunder that the Indians descend from the Africans or the Europeans, and that the climate has changed the color of their skin, how is it, then, that the American Indian preserves in all climates the same bronze color? If the climate of the West Indies darkened the descendant of the European, the snowy mountains of Canada, Quito, and Patagonia should have turned their skin into the same whitish color. If the old nations of the Trans-Atlantic hemisphere should have had authentic information concerning these regions, they would have communicated it to posterity. Some learned men of that hemisphere, even before Columbus, suspected that there were lands here, just as we reasonably suppose that there are such in the center of the unknown portion of the Southern Ocean. But why should we endeavor to make the American a descendant of the other continent? Is it possible that there have come thence the tapir, the llama, and so many other animals of the hot lands of the American tropics? There is no trace of their race in the other hemisphere, and it is impossible that whole species or kinds of animals should come without leaving behind a single specimen of their race. They could not have come swimming by sea; from the north they could not have arrived, at least in the present state of the globe, because the cold would have killed them. No man could have brought ferocious wild animals in ships.

Based on these reasons and other data, I establish the two following epochs of American civilization: Of the primitive, as is to be supposed because of its antiquity,

¹This is an interesting commentary upon our treatment of the Indians, written 85 years ago by a foreigner, who felt himself under no obligations to refrain from telling the truth as he saw it.

there remain no tangible traces whatever. Its destruction must be attributed to an horrible convulsion of the world, to plagues, hunger, to a barbarous invasion of the extremities of the continent, or perhaps to an uprising of the slaves. The colonies, or remains of this primitive civilization, having passed to the eastern coast of Asia, prepared the enlightenment of Japan and of China, and this primitive civilization, although dispersed, likewise left traces for the second.

The Chinese, Hindus, Persians, Chaldeans, and Egyptians all were very much alike in their character and other characteristics, which indicates a common origin which may be looked for in America, and perhaps the Sanskrit language originates in this continent. America lapsed into barbarism, and one century after the destruction of Rome by the barbarians of the North, there appeared from our northern region the Toltecs, bringing with them some enlightenment and a partial civilization, and who settled around Anahuac and founded an empire. Later on the Incas of Peru endeavored to revive the old American civilization.

The Toltecs came imbued with the remembrances of the first epoch of enlightenment which the ancients perhaps left on their journey toward the west. Their conquests and the colonies of the Toltecs were extended to Central America; they mixed their language and customs with those already existing in these regions and formed several states.

From the analogy of their language, writing, and places where sacrifices were made, it is deduced that Copan originated from a Toltec colony, and that its king dominated the country extending to the east of that of the Mayas, or Yucatan, reaching from the Gulf of Honduras almost to the Pacific Ocean, and comprising an area of over 10,000 square miles, at present included in the modern States of Guatemala, Honduras, and Salvador.

Throughout this extent of land the Chortí language was spoken and is still spoken, and from these and other data it is inferred that the peoples of Cuagini-quilapa, Los Esclavos, Quesaltepeque, San Jacinto, Santa Elena, San Estéban, San Juan Ermita or del Río, Jocotán, Camotán, San José, Chimalapa, Sacapa, and San Pablo, in the State of Guatemala, formed a part of this empire. Chiquimula and Esquipulas were governed by subordinate princes of the King of Copan. In Honduras, Omoa, the mineral district of San Andrés, Sensenti, Ocotepeque, Tipalpa, La Brea, and other places were comprised in their dominions. In Salvador the same empire comprised Taxis, Dulce Nombre, Metapas, Tejutla, and Sitalá.

The large city of Copan, Copante, or Copantli was the capital of the nation and residence of the monarch, being situated at 14° 45' north latitude and 90° 52' west longitude from Greenwich.¹ This city is built on the right bank of the river of the same name, extending along said river a distance of over a mile and a half (see map No. 1).² Hills and mounds of unwrought quarried stones indicate the site of the city and of the principal buildings, all of which have fallen. In all that place there are found obelisks, some standing and many lying on the ground, wrought tables, busts, and several fragments of statuary and earthenware.

The principal and highest building was the temple (see plan No. 2), built at the eastern end of the city and perpendicular to the bank of the river. They used

¹Galindo's latitude is approximately correct, but his longitude is more than 160 kilometers too far west. A longitude of 90° 52' west would locate Copan in the western part of Guatemala, not far from Santa Cruz Quiché. See page 1, note 1.

²As already noted at the beginning of this Appendix, all the illustrations, maps, and drawings in Galindo's report had been removed therefrom before it came into Gates's hands in 1918. The writer suspects that the "ten drawings well enough executed," mentioned in Galindo, 1836, p. 268 (see page 19, note 1), and seen by Hamy as late as 1886 in the archives of the Société de Géographie at Paris, are some of the original illustrations of this report, or at least duplicates thereof, which Galindo himself sent to France. The numbers, which follow, are Galindo's references to his own illustrations, now unfortunately separated from his report.

to ascend from the neighboring plain to all the eminences and places where sacrifices were made, by steps which in many places are now deteriorated and lost. The little plaza [the Eastern Court] surrounding the church is 21 yards above the level of the river, and ascent from it is made also by steps which surround it on four sides to the place of sacrifice, to the north, to the west, and to the precipice on the bank of the river. (This is shown from the opposite side of the river under No. 3.) It is a wall of partially quarried stone, the height of which, as now shown, is 47 yards. It contains three openings, called windows, the principal and highest of which, wherein the body of a man can be placed, is 1 yard and 13 inches high and 30 inches at its greatest width. (See fig. 4.) (I estimate the vara or yard at 32 inches, and the latter is a half inch longer than the Castillian vara or yard.) It is constructed, without mortar, of large quarried stones, and extends directly into the hill at the same level and size until it terminates at the same height as the floor of the little plaza, and communicates only with the latter; it is difficult to guess its use, because it evidently was not used for drainage. The window farthest to the north can not be entered on account of its small size, inasmuch as the bottom thereof being filled with earth, constituting a solid terrace, there is only left an aperture 16 inches wide by 8 inches high. The window nearest the water is larger, but is filled in a yard from its mouth or opening. The whole of said wall is very much deteriorated and broken up, although it still has two whole sections built of small, square stones.

Among many excavations, I made one at a place ending in the small plaza [the Eastern Court], where the highest window is located. First I encountered the opening of this window, and excavating to a greater depth, we entered a sepulchral chamber, the floor of which is 4 yards and 9 inches lower than that of the small plaza. It is 2 yards and 6 inches high, 2 yards wide, and 3 yards and 19 inches long, extending directly from north to south, in accordance with the compass, which in these countries has a variation of 9° to the east. The outline of its form is shown in No. 5. It has two niches on each side which are 18 inches high from the floor and which are 16 inches deep, 19 inches high and 28 inches wide, and both the niches and the floor of the sepulcher were filled with pieces of red earthenware coated with tar, such as dishes, wash-bowls, frying-pans, and pitchers. I took out more than 50 of superior workmanship, and some of these were full of human bones, mixed with lime, sharp razors, and with a material that the Mexicans used to call "*itzli*," with a small head (see No. 6), which seemed to represent the head of a corpse, the eyes almost closed, the lower jaw fallen, and protruding lips, there being many symmetrical holes in the back, as for hanging or shaking the same, the whole head being made of a fine stone covered with green enamel,¹ the same as two strings of beads which I also found in the vault, together with many shells of snails and oysters, which undoubtedly were brought from the sea in compliance with some superstition. Besides, there were stalactites brought from some cave to be deposited here. The whole floor of the subterranean vault was filled with fragments of bones, and under them there was a layer of lime on the solid pavement of stone. The stones from which this vault is constructed are 10 inches thick and 10 inches wide and long, and were not set in mortar.

To the west of the square and a little above the steps, there is the gigantic bust (No. 7), called by the common people "The Bull"; it is 2 yards high, although the crest is made of stone separated from the head.² On the same steps, but a little below and in the direction of the place where sacrifices were performed, there is a

¹Galindo here doubtless refers to jade.

²See Stephens, 1841, vol. 1, plate facing page 143.

gigantic monster the shape of which resembles that of a large toad standing, with human arms and the claws of a tiger.¹

The steps of the temple generally are 12 inches high and more than half a yard deep, with an inward inclination; the first two, which lead from the plaza or square upward to the place where the sacrifices were performed, are of the aforesaid size, but the others are from 1.5 to 2 yards high. From the side of the narrow pass to the third step the wall of the place where sacrifices were performed is perpendicular. On the other side of the latter there is an obelisk, 3 yards and 22 inches high [Stela P]. On its western front there is worked in semi-relief figure No. 11; on the opposite side there are two perpendicular rows of double squares with characters and on each side appears the same thing, but with single squares. (No. 18 represents one of the latter.) The whole column is whitewashed, and over it can still be seen parts of the red color which in ancient times must have covered the whole stone, but which water and time have caused to disappear almost entirely.

A short distance to the left of this obelisk there is a kind of solid table, very remarkable, somewhat raised from the ground, together with other smaller stones [Altar Q]. It is 1 yard and 23 inches long, is of the same width, and is 27 inches thick or high; the upper part is divided into 49 squares with characters, having a cornice 4 inches thick, and surrounding the 4 faces of the table there are 16 human figures, seated on cushions or benches, with legs crossed, and with fans, or something else which I can not accurately describe, in their hands, as drawn and shown in Nos. 20, 21, 22, and 23. On the steps which lead up from the place where the table is situated to the place where sacrifices are performed [Mound 16, plate 6], there are many gigantic skulls carved on the extremities of large loose stones.

To the left of the place where sacrifices are performed there is a solid stone, the exterior shape of which resembles that of a canoe; No. 9 shows its outline, while No. 10 represents its upper surface. It is 1 yard and 20 inches high, 26.5 inches wide, and 29 inches in thickness or height.

Near to the corner of this pyramid of sacrifice [Mound 16] there is found a rectangular table or stone [Altar H'], elevated above the ground like that already described [Altar Q] by smaller stone supports; it is 2 varas 21 inches long, and 1 vara 20 inches wide, and 13 inches thick or high; three sides of its edge contain characters, which are in squares (*casillas*) four to a block; figure 17 represents one of these rectangular groups; the edges of the stone thus contain 24 squares on the long side, and 16 on the smaller sides; the other long side, which faces south, and the top and bottom are plain. At the other side of the canoe there is a stone, or table, similar to the last described, but very broken [Altar I'].

The three tables referred to [Altars Q, H', and I']—the one called canoe and the obelisk [Stela P]—are found in the plan on the level of the little plaza [the Western Court], and from thence descent is made toward the south and west to the ground. From the northern side ascent is made by steps to a part of the temple whose height is equal to that of the place of sacrifice, and exceeds that of the river wall [Temple 11]. At the foot of this elevation, on the level of the ground and near the corner which the temple forms to the northwest, is another obelisk with human figures on its front and back, and a row of smaller figures on the two sides, with evidence of all having been of a red color [Stela N]. In front it has a small altar or circular table at a distance of 2 yards.

In the narrow passageway of the temple is a circular stone 1 yard 4 inches in diameter and 16 inches thick. Although it somewhat resembles a millstone, but as

¹This gigantic monster resembling a toad is one of the pair of rampant jaguar figures which flank the Jaguar Stairway on the west side of the Eastern Court, at the Main Structure.

it has not a hole in the center, I do not divine its use [possibly the altar of Stela 1]. There are other circular stones among the ruins of more or less the same size and some of them with holes in their middles.

Some distance from the temple toward the northwest there are five obelisks still standing (see No. 24), the northernmost, at the foot of a great fallen edifice [Mound 2], has on the face opposite the building the representation of a man [Stela D]. It should be borne in mind that all of the standing figures have the hands resting in the same manner, across the breast, and the shoulders are not well delineated. The sides of the obelisk are curiously wrought and the back is divided into 16 squares, wider than they are high, each one containing one or two little figures squatting in various postures. Hard or fine stones are encountered set in the obelisk.¹ The latter and other works of the ruins are of a soft kind of stone, but, nevertheless, it is admirable how the ancient architects wrought them, they being ignorant, as is known, of the use of iron. Did they work with chisels of gold or silver, or did they use chisels of *chaya*? In front of this column there is an altar or wrought table with corners toward the principal figure and 5 yards distant from it.

To the south of this obelisk there is another, whose eastern face contains figure No. 14, and in the opposite face the drawing No. 15 [Stela B]. The height of the stone is 4 yards, the width is 1 yard 13 inches, and the thickness 1 yard 4 inches. The sides contain squares with characters (hieroglyphics). It is seen that the figure of this obelisk, like the others, has bracelets on the wrists and ankles, the feet have sandals tied on them, the laces passing between the first, second, third, and fourth toes. The dress of this figure extends only to the upper part of the thigh.

A little to the south, and close to another fallen building [Mound 4], there is an obelisk [Stela A], the back of which contains the characters shown in No. 16, which are placed in double squares, that is to say, 2 in each quadrangle. Those which appear in the lower row are no longer legible. The Indian writing found among all these relics is quite interesting, especially because heretofore we did not know that the art of writing was known on this continent before the voyage of Columbus. This writing is hieroglyphic-phonetic, representing sounds, and is greatly superior to the paintings of the Mexicans and the symbolic hieroglyphics of the Egyptians, which only represented things.² A human figure appears on the front of this obelisk, and on each of the two sides there are 2 single rows of squares with characters; its height is 3 yards 21 inches, 1 yard 2 inches wide, and 1 yard thick. It is evident that it had had red paint, and it seems to me that all the obelisks were painted, although in some of them the influence of time has destroyed the color. To the east, and in front of figure No. 14 [Stela B], there is another standing stone, the back of which contains 20 squares arranged in groups of 4, as can be seen in No. 19 [Stela F]. The upper ones seem to be hanging, and the same is true of the two squares of No. 15, all of which lead us to believe that this nation used to write their letters on wooden tablets which they afterward hung in their homes with strings or ribbons. The front of the obelisk is occupied by a human figure in half relief, in front of which there is a large square table or altar, having a hole in the middle. The obelisk nearest the temple is located at a distance of about 200 yards to the northeast, being to the south of the last one described, separated by a distance of 25 yards [Stela H]. The figure on its face is shown in drawing No. 12. The trousers he wears are curious; perhaps it was a woman's dress. No. 13 represents

¹Galindo here refers to the roughly spherical inclusion composed of a harder, more indurated material found in the rock-mass of Stela D, for a description of which see Appendix I.

²It is hardly necessary to point out that Galindo is in error here as to the real character of the Maya hieroglyphic-writing. While it is indubitably true that phonetic elements occur here and there in the texts, the great majority of the signs are *ideographic*, that is, they stand for *ideas* rather than *sounds*. (See Morley, 1915, pp. 23-30.)

the foot of the same figure drawn to the right. In front of the figure, at a distance of 3 yards, there is a table or altar with the corner toward the figure, the upper part being straight. The other 3 sides of the obelisk are curiously wrought.

Near by there is a stone (figure No. 8), almost spherical in shape, surrounded by a belt, its horizontal diameter being 1 yard 28 inches, while its smallest or perpendicular diameter is 1 yard 6 inches. In the upper part there is a small circular cavity crossed by a serpentine line. I wonder what whim of art this could be?

There is also here, fallen and in ruins, the head of a gigantic alligator or lizard, between the jaws of which there is placed the half body of a monstrous figure, whose face is human, but with the claws or feet of an animal.

On the other side of the Copan River, on a hill in front of the windows, and at a distance of half a league or more from the latter, there is a monumental stone, now fallen and broken into 2 parts, a small piece of its head being missing [Stela 12 at Group 3]. Although it stands on a commanding site, at its back there is, at a certain distance, a still higher mountain.

This obelisk, like all the others, is parallelepipedal in shape. It was standing with one of its wider sides overlooking the windows, that is to say, west $29^{\circ} 15'$ north, surrounded by a pavement a little higher than the ground, 8 yards long, extending from the northeast to the southwest, being from 4 to 5 yards wide.

This obelisk, monumental stone, or column was not a perfect parallelepiped, as its width and thickness gradually diminish from top to bottom, and although its actual total length was 3 yards 28 inches, its greatest width at the top is 24 inches, and at the bottom it is only 22 inches wide. In the upper part the greatest thickness of the obelisk is 19 inches, and at the bottom it is only 16 inches. The stone was buried to the depth of 24 inches, and the 12 inches from that point to the squares of its inscription are smooth. On the two widest faces of the column there are 48 squares in 4 perpendicular rows of 12 each. On the other 2 sides there are 52 squares, also in 4 rows, 2 on each side. The 4 lower squares of the widest faces are 9 inches square, their width upward being the same, but their height gradually diminishes until the height of the 4 lower squares of the same faces is only 6.5 inches. The same is true of the 2 thick sides of the obelisk, where the 4 lower squares have a width of 8 inches and a height of 7 inches, the width continuing uniform upward, but the height diminishes gradually, inasmuch as the upper squares become equal to those of the other two faces at a height of 6.5 inches. The margin makes the difference in the size of the column. The red paint which covers this stone and causes the common people to call it painted is so well mixed that even now it is noticeable throughout the entire surface, and seems to constitute an essential part of the obelisk.

Upon a hill, at a point even more prominent than the one referred to, and about 2 leagues distant west of the windows, there is another monumental stone [Stela 10 at Group 12]. This obelisk is smaller than the one just described, and is completely fallen. Its height from the bottom of the squares is 24 inches, its total length being 3 yards 20 inches. It is rectangular in all its parts and contains 72 squares, arranged in 8 perpendicular rows of 9 each. On the two widest sides of the obelisk, that is to say, those which are 24 inches wide, the squares and their characters are very distinct and marked. On the other 2 narrower faces, the 2 rows of squares can scarcely be distinguished, and the characters are confused for lack of space. These letters, signs, or characters, like most of the others which have been noticed, are painted red.

Many piles of fallen edifices are found in all the neighboring country. Half a league to the north of the western boundary of the city there are immense quarries, forming great precipices and ravines, from which the ancient architects obtained

material for their buildings, obelisks, etc. The stone, of course, is the same as that which is encountered in the ruins. These quarries are in the ocote-pine groves, in the direction of the hill of Cutilca.

The Cave of Tibulca, of which Father Juarros speaks so fabulously, must be the Cutilca Cave, as there is none other in all that vicinity, and it should be added that this corruption of names has been common. On the side of the hill of Cutilca, some 800 yards above the Sesesmil Canyon, which divides said mountain from the "Cerron" or large mountain, called by this name because of its greater height, facing the west, is the mouth of the cave commonly called "Tigra" [Tigress], because some 20 years ago a ferocious animal of that species took refuge therein. As the hunters desired to starve this animal, they closed the entrance with a fence, but being tired, after 7 days waiting, they entered the cave and killed the wild animal with their lances. The entrance to the cave is 5 yards high and 2 wide, and the fence, which completely closed the same, still exists.

This cave is quite inferior in extent, beauty, and interest to the Jobitsiná Cave near the Lake of Peten, the latter cave being one of the most beautiful works of nature, but the nearness of the Cutilca Cave to the great city of Copan must have made it famous. According to figure No. 25, the gallery at the entrance is level until it turns to the north, then rapidly falls to another level which, on account of its greater width, forms a hall. From this hall ascent is made to another space a little higher up. There are 80 paces from the farthest extremity of the cave to its mouth. Only a few bats dwell there. It does not have many nor beautiful stalactites, and these are not very hard, and can be loosened almost by the force of the fingers. Since the death of the tigress no one has dared enter the cave.

The hill of Cutilca is, furthermore, very remarkable because of its picturesque slope. Near the top and looking toward the south there is an immense precipice of red rock. The common people speak of a cave supposed to exist at the foot of this ravine. After many difficulties on account of the steepness of the mountain, I went up to this place, which has no cave other than some small open cavities. From the foot of this natural wall a large extent of the States of Guatemala, Salvador, and Honduras, the Gilotepeque volcano, etc., is seen. At a distance of 3 leagues from Copan, across the little hills of ocote-pine forests called Llano Primero, half a league to the west of the *rancho* of Llano Grande, through which passes the main highway from Chiquimula to the plains of Santa Rosa, are found quantities of trunks of petrified ocote-pine, particularly three kinds, namely, one of great specific gravity or weight, another of flint stone, and another much used for sharpening iron instruments. Great trunks of petrified pine are seen almost buried, and those which are on the surface are of different sizes, but are generally split horizontally by the force of the sun, in widths of from 4 to 5 fingers. In a neighboring oak grove are found pieces of petrified oak, equally good for whet and spark-stones. Petrified wood is found in great masses wedged in the fallen trunks, and large pieces of the same are half buried. Crossing a creek through the oak forest, which stream dries up in the summer, it is found that all of the said ocote-pine and oak groves are in a dry place, which causes us to wonder as to the cause of the petrification. This is one of the curiosities which makes Central America the country where nature has been most lavish in exhibiting its wonders.

Pines and oaks grow in the midst of petrified timber. Only in the place indicated is this petrification found, since there is nothing like it in the neighboring country, not even in the swamps. This petrification process has doubtless suggested to the present inhabitants of these regions the foolish idea which they entertain, concerning the human figures which are found in the ruins of Copan, that

formerly they were living beings who, because of their heathenism and sins, became stones by divine wrath.

The Copan River rises in the mountain to the east, runs through La Brea and beneath the windows. Farther on the Sesesmil Canyon joins the river on the north, this canyon rising also in the said mountain, passes near the famous Cave of Cutilca. It used to divide the western suburbs of Copan from the rest of the city, and flows into the river within the limits of the city, as may be seen on map No. 1.

The Copan River runs to the west, receives the Jupilingo River, runs through the village of Xupá and the villages of Camotán and Jocotán; and 7 leagues below the Chiquimula River empties into it. It passes between Sacapa and Estansuela, and empties into the Motagua, its course extending 20 leagues, counting from this place [Copan] to its mouth. Thence to the sea, through the Motagua River, is a distance of 65 leagues, following the course of the river. The Copan River contains a great quantity of fish and in no place is navigable, although in the winter season logs are floated down it.

Comparing these ruins with those of Palenque, it can be seen immediately that their similarity suggests a common origin, in spite of the fact that they differ in essential points.

Palenque was ruined and forgotten before the conquest, while the Spaniards found Copan in all its splendor, and yet the buildings and other works in Palenque are in a better condition than in Copan, owing to their superior architecture. Here in Copan there are no houses standing, as there are many in Palenque. Its building-stones are of diverse character, while those of Palenque are not more than 2 inches thick. The roofs in Copan were made of inclined stones, while those of Palenque are always horizontally placed. In Palenque they are cemented with mortar, while in Copan they are not.

In ancient times, with the exception of Palenque, Copan was undoubtedly the most remarkable city of Central America, since, if the capitals of the Quichés and Cachiqueles equaled it, there would have been left some signs of their superiority.

There is more fineness and perfection in the human figures there [Palenque], and they are nearly always placed in profile, while these on the contrary are most commonly found with front views. I did not see obelisks nor carved tables at Palenque.

The circular stones of both places are very similar, and also I find their writings always placed in almost square blocks containing faces and hands and other identical characters. This similarity may come from the similarity of the Maya and Chortí languages, or perhaps because the inscriptions are in a dead language, the common mother of the two languages mentioned. In the same manner modern nations frequently use Latin under the same circumstances. The following is a short vocabulary of the Chortí language:

Quin	Sun.	Unen	Son, Daughter.
Üj ¹	Moon (a month).	Sacun	Elder brother.
Ek	Star.	Uitsin	Younger brother.
Kak	Fire.	Jor	Head.
Ja	Water.	Sutsernijor	Hair.
Tokar	Cloud.	Unacaut	Eye.
Unik	Man.	Chiquin	Ears.
Ixik	Woman.	Ti	Mouth.
Tegerom	Boy.	Caab	Hand.
Ikchok	Girl.	Tigere	Tapir.
Tatá	Father.	Masá	Deer.
Tu	Mother.	Mut	Bird.

¹This is the Spanish *j*, and equals the English *h*; *x* equals English *sh*.

Chai	Fish.	Otot	House.
Guiná	Hunger.	Uitsir	Hill.
Jacatiniti	Thirst.	Nojá	River.
Aingüe	To eat.	Inté	1.
Unchi	To drink.	Chaté	2.
Inguaian	To sleep.	Uxté	3.
Inchamai	To die.	Chanté	4.
Te	Tree.	Joté	5.
Ucabte	Branch of a tree.	Uakté	6.
Tajte	Ocote-pine.	Uaxikté ¹	7.
Ixim	Maize.	Ukté	8.
Ajan	Ear of green corn.	Boronté	9.
Uchigtun-cha	Grindstone.	Launté ²	10.
Tun	Stone.		

In the orthography of the indigenous languages of Central America, *x* has the same value as the French *ch*.

The climate of Copan is excellent, and the site of the city has all the advantages which the ancient Americans generally chose for their principal towns. Copan is located 770 yards above the level of the sea, and consequently has a temperature similar to that of Amatitlán.

Now that the governing class of this hemisphere has a direct interest in its fame and a filial love for its history, the ancient history of America will begin to be properly considered and written. The study of the history of their own country will give to the people of Central America a more refined patriotism and a character peculiarly its own.

Probably the founding of the Empire of Copan was contemporaneous with that of Peru, that is to say, about the eleventh century of the Christian era.

The Spanish conquerors invariably assert with pride that the indigenous nations of the continent spontaneously offered themselves as vassals of their king on the first intimation or hint given them. This is undoubtedly affirmed, to justify their invasions, but that such an assertion is false is inferred from the long wars that they always waged with the natives.

The well-known expedition which marched against Copan was under the command of Fernando Chaves, who came from Guatemala some time in April 1530, with an army of Europeans and native allies. He advanced not without opposition, through Jalpatagua, Mita, and Esquipulas, and then laid siege to this city. No person could point out the place of the victory of Fernando Chaves over the King of Copan. These inhabitants do not know that such a battle took place. The ignorance and apathy concerning the origin and history of the ancient monuments are really surprising. The owner of the adjoining ranch, Ornillos, who, being a prominent and wealthy gentleman in this part of the country, was supposed to be somewhat intelligent, does not seem to know anything at all. The Spaniards taught all of them to look with hatred and contempt on the works of the natives, because the latter were not instructed in the mysteries of our holy religion, and it is still difficult to eradicate and destroy this feeling.

Four or five leagues from Esquipulas is the place popularly called "Conquest" (see figure No. 26). It is a peninsula formed by the Lempa River, and in part by a brook which unites with that river to the south, the waters running through a very

¹Galindo has evidently interchanged the words for 7 and 8 here. The Maya word for 7 in the Books of Chilan Balam (northern Yucatan) is *uuc*, and for 8, *uaxac*, which are very similar to the Chortí words Galindo gives for these two numbers, *uaxikté* and *ukité* respectively, only reversed. The *té* is an unessential difference, being only a particle used in counting, as *pel* and even *té* itself in northern Yucatan, for example, *hunp'el haab*, 1 year; *oxp'el haab*, 3 years, and *te hunté Pop*, the first of Pop.

²The corresponding forms in the Books of Chilan Balam are: 1, *hunp'el*; 2, *cap'el*; 3, *oxp'el*; 4, *canp'el*; 5, *hop'el*; 6, *uacp'el*; 7, *uucp'el*; 8, *uaxacp'el*; 9, *bolonp'el*; and 10, *lahunp'el*.

deep canyon in the vicinity, leaving to the south a single narrow entrance. After traveling some distance through it, a stone trench is encountered, with many quarried stones, which crosses the isthmus where it is not wider than 20 yards. After passing the trench, a plain of about 200 yards in diameter is found, surrounded by the river and elevated above it by perpendicular precipices more than 100 yards. The side opposite the peninsula is level with it, but at a distance of a rifle shot. As a point of defense it was excellent, the besieged having supplies of provisions and the means of drawing up water from the surrounding abyss.

Bearing in mind the advancement the aborigines of Copan had made in art, science, and civilization, the coldest and most indifferent soul revolts against the barbarous conquerors who allowed even the memory of such an interesting nation to perish.

It is due to the memory of the priests, who were themselves the victims of the Spanish rule, that, during the first years of the conquest, they were the strongest, or, it may well be said, the only defenders of the unhappy Indians, and they brought upon themselves, therefore, the universal hatred of the conquerors. Guatemala will always be proud of having had as one of its citizens that noble and untiring defender of the Indians, Bartolomé de las Casas.

A number of Indians driven from Copan after the conquest, founded, it is believed, the neighboring towns of Jocotán and San Juan Ermita. Camotán, a village nearer to Copan, was founded many years afterwards by natives of the Chortí nation, who emigrated from Tachaluya, in the State of Salvador.

Copan continued to be inhabited, even after the conquest, but in a state of perpetual decadence. Some 75 years ago the cultivation of tobacco was brought from there to the plains of Santa Rosa, and the population gradually decreased to a village of three houses situated to the west of the Sesesmil Canyon, which formerly comprised the western suburb of the city. The site of the ancient capital is now entirely included in the lands of a chaplaincy founded by the curacy of Guatemala.

I have the honor to express to you, citizen minister general, the assurance of my most humble respect and devotion.

God, Union, Liberty.

JUAN GALINDO.

NOTE.

Through a fortunate accident, when this volume was already on the press, the writer learned that Colonel Juan Galindo was born in Ireland, and was a Central American by adoption only. Thanks are due for this timely information to Dr. Don Policarpo Bonilla, former President of Honduras, and now Envoy Extraordinary and Minister Plenipotentiary on Special Mission from that republic to the government of the United States.

Galindo, it seems, after his return from Copan in 1834, was sent by the government of Central America to Great Britain to effect a settlement of the boundary dispute then pending between the two countries, but when he arrived in London the British government refused to receive him as a diplomatic agent in the negotiations on the ground that he was a British subject, having been born in Ireland, and was thus disqualified from representing the government of Central America.

The whole correspondence, so far as it affected the United States government, to which Galindo first appealed before going to England, was published in *United States Senate Documents, second session, Thirty-second Congress, 1852-1853, Senate Document No. 27, pp. 1-13*. Miss M. W. Williams, in her *Anglo-American Isthmian Diplomacy, 1815-1915*, also gives a brief summary of the affair. See Williams, 1916, pp. 33, 34.

Squier describes Colonel Galindo as an intelligent Irishman (1855, p. 52), and gives the following biographical sketch and a bibliography of five titles (*ibid.*, p. 390). Unfortunately it has been impossible to ascertain his real name from any of the several sources mentioned.

"Galindo, John, an Irishman, who entered the service of the old Republic of Central America about the year 1827, received the rank of colonel in the army, was governor of the Department of Peten in Guatemala, subsequently named representative of the republic to the court of St. James, but was refused recognition on the ground of being a British subject, and was finally killed in an Indian town in Honduras. He was far from being a close observer, nor was he a man of large information. He nevertheless was industrious, and gave the world many interesting facts, coupled with crude speculations, on the states of Central America and the country in general. After Juarros, he was, I believe, the first to direct public attention to the ruins of Copan."

APPENDIX XII.
THE DISTRIBUTION OF THE SEVERAL BRANCHES OF THE MAYANCE¹
LINGUISTIC STOCK.

WILLIAM GATES.

In the following pages I have endeavored to set forth three points, as follows:

(1) To indicate the probable nature of the tongue spoken at Copan during the Old Empire, based upon all the evidence now available, including much new unpublished material in my own collection of Mayance manuscripts and rare, if not unique, copies of early published grammars, texts, doctrinas, reports, and the like.

(2) To establish by means of geographical, phonological, grammatical and vocabulary comparisons, the proper relation of that language to the other members of the Mayance linguistic stock.

(3) To collate briefly this evidence with the historical and chronological data worked out by Morley, the stylistic data accumulated by Spinden, and certain native traditional and historical data as yet only partly published.

In figure 91 the distribution of the several Mayance linguistic branches is shown. This map is based upon Stoll's ethnographic map of Guatemala² and Thomas's linguistic map of Mexico and Central America,³ together with certain emendations of my own, indicated by unpublished material in my collection.

The most important new contribution to the subject brought out by this study is the proof of the essential unity of the Choltí and the Chortí dialects as members of the same linguistic branch, a condition absolutely demanded by the archæological evidence, but one which heretofore it has been impossible to admit on the linguistic side, because of the incorrect filiation of the Chortí with the Pokom group through Stephens's curious error in 1839, when he collected 21 Pokomán words from a Pokomán Indian in *Chortí territory*, *i. e.*, at Zacapa.

On the basis of this word-list, Stoll later filiated Chortí with the Pokom branch, thereby creating a gap between the archæologic and linguistic evidence which it has been impossible to account for. The true position of the Chortí, *i. e.*, filiated with the Choltí, however, clears up this discrepancy and for the first time brings these two lines of evidence into agreement with each other.

Our earliest information as to the language spoken in the vicinity of Copan comes from Palacio (1576), who after recounting the tradition that people from Yucatan had anciently conquered the provinces of Ayajal (probably Tayasal), Lacandon, Verapaz, Chiquimula, and Copan, adds that "it is certain that the Apay language, which is spoken here, is current and understood in Yucatan and the aforesaid provinces."

In the name Apay we probably have the same as in Payaquí, given in *Isagoge*⁴ as applying to the Corregimiento of Chiquimula, "in which are the edifices of Copan." The authority here is a manuscript probably quoted in the unpublished part of Fuentes, but which I have not by me while writing, to verify. The great Balam Quiché, ninth king of Utatlán, is there given as the first king of those of

¹Gates uses the term "Mayance" to designate the entire family of Maya dialects, drawing his analogy from the use of the word Romance in European linguistics to indicate the modern representatives of the old Roman or Latin linguistic stock. However, he still follows the general usage in speaking of "the Maya civilization, Maya art," etc.

²See Stoll, 1884, map.

³See Thomas, 1911, map.

⁴See *Isagoge histórico*, 1892, p. 348.

Payaquí, having united the two kingdoms, eleven reigns before the coming of the Spaniards. Upon the name Apay I find no further light, the vocabulary of the Paya, in northeastern Honduras, being so completely different as to be out of consideration.

The next reference, and the first Chortí vocabulary yet found, is in the Galindo report of 1834, the chance discovery of the original manuscript of which in my collection last summer (1919) led to the writing of this Appendix. This list contains 51 words, including the first ten numbers, and is definitely good Chortí, having come from Copan itself.



FIG. 91.— Map showing distribution of the several branches of the Mayance linguistic stock.

I. Maya.

- 1a, Maya
- 1b, Itz'á (Icaiche, Santa Cruz)
- 1c, Lacandón

II. Tzental

- 2a, Tzental
- 2b, Tzotzil
- 2c, Chontal
- 2d, Chañabal

III. Choltí.

- 3a, Choltí
- 3b, Chortí

IV. Mame.

- 4a, Mame
- 4b, Ixil
- 4c, Aguacateca
- 4d, Solomeca
- 4e, Jacalteca
- 4f, Chuje
- 4g, Chicomucelteca
- 4h, Motozintleca

V. Quiché.

- 5a, Quiché
- 5b, Cakchiquel
- 5c, Tzutuhil
- 5d, Uspanteca

VI. Pokom.

- 6a, Pokomán
- 6b, Pokonchí
- 6c, Kekchí

VII. Huasteca.

Juarros, writing in 1795, gives Chortí as the language of Chiquimula, Zacapa, Esquipulas, Jocotán, Tejutla, and Los Esclavos (stating in addition that Pokomán is spoken in Chalchuapa, Mita, and Jilotepeque).

With the vocabulary of 21 words gathered by Stephens in Zacapa in 1839 and incorrectly identified by him as Chortí, a language which he correctly claims was spoken in Jocotán, Camotán, and the valley of Sensenti in Honduras, our troubles begin. This word-list was given by Stephens to Gallatin, who published it¹ and it was later incorporated by Berendt in a comparative word-list of about 600 words, the manuscript of which, after passing into Rockstroh's possession, was finally published *in extenso* by Stoll,² except for the omission of 4 out of Stephens's original 21 words. Stoll compares these 17 words with the corresponding words of Pokomán and Chol, and the unmistakable likeness of the Pokomán and spurious Chortí in this list, and their common dissimilarity from the Chol (5 of the 17 are common to all three, and the other 12 are Pokomán, and not Chol), caused him to filiate Chortí as a subdialect of the Pokom group, while Chol was properly branched with Tzentel, Tzotzil, Chañabal, and the (Mayance) Chontal of Tabasco. Stoll was at Zacapa for a few days, but found no one still speaking the language; but he quotes a letter from Dr. Eisen, however, who had visited Copan in 1882, in which the latter speaks of Chortí "as of the greatest importance for the deciphering of the glyphs, as it must be the original language of Copan," and comments on the great difference of the Jocotán mountaineers from the other Indians. Squier³ also says the Chortí extended over into the Sensenti Valley in Honduras.

Brasseur de Bourbourg in a note in the *Popol Vuh*,⁴ says that the kingdom of Chiquimula was called Payaquí among the Toltecs or Nahuas, "according to the *Isagoge* manuscript, cited by García Peláez"; also that Chiquimula was the "native name of Copan," a Nahuatl word, also written Copantli, and at which was spoken Chortí, "a dialect of Pokomam." I can find no foundation, however, for any of these Nahuatl connections, nor am I able to verify the Pokomán relation in any way. Brasseur de Bourbourg himself knew no Chol, and probably relied upon the Stephens-Gallatin tradition, copies of both of whose works were in the Pinart sale, which included the greater part of Brasseur de Bourbourg's own library.

Our next material we owe to Ruano Suárez, who in 1892 presented to the Central American Exposition a study of Guatemalan dialects which contains a Pokomán vocabulary of some 800 words gathered in Jilotepeque, and a Chortí vocabulary of some 1,500 gathered in Chiquimula. He tells us that Chortí is also spoken in Jocotán, Camotán, Olopa, Esquipulas, and Quetzaltepeque, but that in 1892 it was no longer used in Chiquimula by any of the Indians then living under 50 years of age, being preserved only by a few surviving *ancianos*. For this reason, and also because of the adjoined Pokomán vocabulary, gathered by the same student at the same date, the Ruano Suárez manuscript must be counted as of great value; it is also in my possession.

Señor Alberto Membreño, long Minister from Honduras to this country, who has for many years added scholarship and literary research to his diplomatic qualifications, has next given us a 400-word Chortí vocabulary, in his *Hondureñismos*, first published in 1895.⁵ This list, however, he tells us is only an extract from the Ruano Suárez manuscript just described.

Finally, we owe to the Licenciado Atilio Peccorini, of San Salvador, a list of 150 words, with a page of phrases, taken down by him from a native named Nazario Agustín at Camotán, in 1909, on the occasion of a visit to Copan.⁶

¹Gallatin, 1845, p. 9.

⁴Popol Vuh, 1861, p. lxxxv.

²Stoll, 1884, p. 108.

⁵Membreño, 1897, p. 261.

³Squier, 1855, p. 385.

⁶Peccorini, 1909, pp. 79-83.

Gathering the foregoing material together and eliminating the spurious Stephens list, which we have seen is Pokomán and not Chortí at all, we have the following Chortí vocabularies: (1) Galindo (1834), 51 words; (2) Ruano Suárez (1892), 1,500 words; (3) Peccorini (1909), 150 words.

The foregoing data delimit the Chortí region very satisfactorily, except that they leave us entirely without definite information as to whether it extended over to the Motagua River and the coast, *i. e.*, including Quirigua; this northern limit is of some importance, because it is the boundary between the Chortí and the Chol, or Choltí, which we have to examine next.

The Chol region has been the subject of much discussion and uncertainty, but I am sure the delimitation in the linguistic map in Stoll's *Ethnographie* is closely accurate; its boundaries, however, also go over into Chiapas, which Stoll's map does not include. The restriction of Chol to a small district around Golfo Dulce, as mapped in Thomas and Swanton, is unquestionably wrong. (See Thomas, 1911, map.)

Passing over the various abortive efforts at entry and pacification of this great region, stretching from Golfo Dulce to Laguna de Términos and west of the Usumacinta River, during the first century after the Spanish Conquest, we come with the year 1625 to an effort which, though equally fruitless in its direct objects, yet resulted in the first and only real foundation for our present study. In that year 40 soldiers were sent under the alcalde of Verapaz to open a road to Laguna de Términos, with them going the Dominican, Francisco Morán; and in the same year possession in the King's name was taken of 18 towns in the "province of Manché," or the eastern part of the above region. San Miguel is given as capital of this province, and another of these 18 towns was San Lucas de Zalac de el Chol; 7 other towns are mentioned as added to these, not counting 19 other un-reduced towns of the "barbaros," all of which are named, and one of which called Axiza was said to have 10,000 souls.¹ By 1639, however, little of the reduction remained, and a number of new petitions were presented, including one by Padre Morán himself, and another, inspired by his representations, by Diego de Vera Ordoñez de Villaquirán, to whom was then conceded the task, with title of governor and captain-general of the new province, which was to be called "Prospero (alias el Lacandon)." A long detailed relation of events up to this time was made in a printed report to the Council of the Indies by the Relator León Pinelo, only one copy of which, with the accompanying printed title issued to de Vera, is known to have survived. Among other things it mentions one printed and also one manuscript memorial on the subject, presented by Padre Morán to His Majesty in 1637; and also that Morán stated there were 100,000 souls, apparently referring, says León Pinelo, to Manché and Lacandón alone, while Diego de Cárdenas gives the number as 500,000, referring probably to the entire unsubdued district. What seems beyond doubt, from the very scanty descriptions given of places like Puchutla, for example, is that the whole region must have been not only populous, but with a very considerable status of culture.

Padre Morán left compiled a *libro de quartilla grande alto*, which he collected from "many of the friars." This contained a most excellent grammar, a *Doctrina*, and a fine vocabulary of some 5,000 words, and it was unquestionably extensively used by his successors, though the original has disappeared.

By 1675 practically nothing of the work of pacification of the region seems to have survived. In that year the Dominican Provincial Gallegos set out with Padre

¹This is doubtless one of the many variants for Itza or Ahitza, the capital of the Itza nation from 1450 circa to 1697. (See Means, 1917, Appendix 1.) This settlement was located on an island in the Lake of Peten Itza and was conquered by Martín de Ursúa in 1697. (See *op. cit.*, pp. 179-185.) The *Isagoge histórico* (p. 371) speaks of Cortés's passage "por las montañas del Ahiza."

Joseph Delgado, who had just returned from travels the year before among the Choles. Setting out from Cahabón, at 23 leagues in the forest they formed a small settlement, according to Villagutierre, calling it San Lucás Tzalac; 4 of the 11 towns said to have been formed in the next two years bear the names of towns included in the León Pinelo 19; some 30 other places are named, to most of which they could not go, but some of these are also the same as those named in 1639. The population of the whole district is here given as 30,000. Villagutierre also mentions Ordoñez de Villaquirán as still Alcalde Mayor of Chiapa and Adelantado of Próspero about 1680, and as starting to put down a Queache uprising beyond Tenosique. In the beginning of 1685 we are told that San Lucás Tzalac was established a third time. The maintenance of this settlement was the only thing attempted in the succeeding years, and in 1688 the Indians burned the church and houses; but happily a small manuscript volume escaped, as we shall presently see. This manuscript was presented by President Mariano Gálvez in 1836 to the American Philosophical Society, since which time it appears to have lain wholly unused, save only for a scanty and very inadequately copied extract by Berendt. It begins with some notes about the road to the region of the Choles and the settlement thereof in 1689 to 1692; then follow two transcripts, by different hands, and with minor variances of the Morán grammar; then Morán's *Doctrina*, with considerable additions; next at page 75, a *Confessionario*, written "at San Lucas de Salac de el Chol, in 1685"; and finally the *Vocabulario Grande* of Morán, with some additional words and a colophon dating this as having been written "In this town of the Lacandones called La Señora de los Dolores, June 24, 1695."

This manuscript is doubly important. It contains not only the earliest Choltí vocabulary known, but also the most extensive one, and in a larger sense has been more useful than any other source in filiating the Chortí with the Choltí as parts of the same branch.

The territory we are discussing is given by León Pinelo roughly as stretching from 15° to 16° 30' north latitude, and some 4 degrees east to west, or about "40 by 70 leagues." In this region we have two "provinces," Manché in the east and Lacandón, or Próspero, in the west. Going north from Cahabón one entered "Chol" territory almost at once, which then continued, according to Padre Cano, for some 45 or 50 leagues to that of the Mopanes, *for whom the Choltí needed an interpreter*, and whom he classes as belonging to the great Itzá nation, which he divides into the Mopán-Itzás and the Petén-Itzás. There is no reason to doubt the accuracy of Padre Cano's statement, and it definitely places the Mopanes as speaking what we now call Yucatecan Maya, though with dialectic differences; and it confirms the distinction of the Choltí.

When Padre Morán first set out in 1625 for Laguna de Términos, he reached a river, rapid and unnavigable, at 12 leagues of travel; in 6 days' journey more he reached the Salinas of Bolontevitz, or Nueve Cerros "among the Lacandones," and then 1 league farther the navigable river "which he was seeking," namely, the Chixoy. When the 1695 expedition set out, in three divisions, one from Cahabón, one from Huehuetenango, and one from Ocosingo, the first, and that which Padre Cano accompanied, returned after penetrating close to Petén; while the other two met, after some 6 weeks of travel by easy stages, at Dolores. This latter place is described as being located a short league beyond a great river with green waters, which the company from Huehuetenango took for the Ocosingo River, and again as about 12 leagues beyond a large lake encountered by the company from Ocosingo, under President Barrios himself.

We thus have in this little Choltí volume, now in the library of the American Philosophical Society, memoranda written at Belén, apparently at the distance of a considerable journey from Rabinal, in 1690 to 1692; then next the grammar;

then the *Confessionario* at Tzalac in the east, in 1685; and finally the *Vocabulario*, dated at Dolores in the west, in 1695; and yet nearly the whole volume being derived from the *libro grande* of Padre Morán, doubtless written some 60 years before.

For further Choltí linguistic material we have a Chol vocabulary of some 450 words, by Juan Jossef de la Fuente Albores, dated "Casa y Curato de VS, Tila y Enero 26, 1789." Tilá appears to be the name of the place; this is printed by Ferraz, in *Lenguas Indígenas de Centro América*, 1892.¹

Next we have the Berendt-Rockstroh comparative word-list of some 600 words, printed by Stoll,² which is apparently from the western or Usumacinta district. In this connection Stoll says the Choles are now left only in five villages in the Department of Palenque—Palenque, Sabana, Salto de Agua, Tumbalá, and Tilá. Berendt speaks of the Usumacinta Lacandóns as reduced to a remnant near the Río de la Pasión, and in a passage of doubtful significance seems to distinguish an eastern from a western branch, speaking different languages, one being Putum or Chol; he also speaks of the peaceful character of the eastern branch and the warlike character of the western branch. Finally we have a list of 100 words taken down for me in 1915, at Salto de Agua, near Ocosingo.

The foregoing Choltí sources may be summarized as follows: (1) Padre Morán (1625-1695), 5,000 words; (2) Jossef de la Fuente Albores (1789), 450 words; (3) the Berendt-Rockstroh List, 600 words; (4) the Gates List (1915), 100 words.

The foregoing is our material for the study of Choltí-Chortí, so far as known to me; and from its study we reach the following conclusions:

First, and most important, Choltí and Chortí constitute but one language, with but a single distinction, to be discussed below; and the two combined almost constitute a branch to itself among the Mayance tongues, stretching from the Sensenti Valley in Honduras, including Copan and Quiriguá, through the *tierra caliente* north of the Guatemalan highlands, a stretch of country some 40 leagues broad, quite to Ocosingo and Palenque, the Tuhá and Nachán respectively of Ordoñez. It is bounded on the south by the three southern Mayance branches, the Pokom, the Quiché, and the Mame, on the north by the Yucatecan Maya, and on the west by the Tzental district. Its closest affiliation is with the last; and it must either be treated as a separate branch altogether or as part of the Tzental or Chiapan branch.

The ending *ti* in Choltí means mouth, speech, and reappears as *chi*, with this same value in Kekchí, Pokonchí, and Cakchiquelchí; the word appears as *chi* in Maya and in the Pokom and Quiché branches, and as *ti* in all the dialects of the Tzental group, and as *tzi* in the Mame-Ixil, except that in the Jacalteca and Chuje, on the northern Mame border, *i. e.*, nearest the Choltí (see fig. 91, 4e and 4f), it is again *ti*. The authority for the latter is Stoll in his treatise on the Ixil, but it is also confirmed by word-lists for Chuje and Tohoabal or Chañabal, in my own possession. (A Choltí *ɣ* frequently becomes a Maya *t*; *t*, *ch*; *ch*, *c*; and *c*, *k'*.) *Chol* means farm or milpa, and is the same as Maya *col*; thus the word is given in the Morán manuscript, which begins, *Arte de lengua Eholti, ó lengua de Milperos*. And the Morán vocabulary also defines two other words, which clear away two other long-standing linguistic confusions. *Putun* is given as *manso*, peaceable, and so exactly applies to the peaceful eastern Choles on their milpas, whence the term Putum, which in time was corrupted by copyists to Puctunc and Punctunc, and possibly survives to-day in the modern Poctun, a village of eastern Petén. And *quelen* is defined as meaning *hombre fuerte*, strong man (*vir*, *varón*), whence its application to the warlike western people, in exactly the same way as we find the corre-

¹See Fernández, 1892, pp. 43-48.

²Stoll, 1884, pp. 45-70.

sponding Quiché term *Achí* given as a variant for the Tzutuhil; this specifically answers the query under Tzotzil in Thomas, 1911, and is confirmed by the Tzotzil *quelem* for *mancebo*, youth, and the Tzentál *quelemut*, gallo or cock, where *quelem* equals male, or *macho*.

Second, while the unity of the Chol and Lacandón of the seventeenth century is shown by the history of the Morán manuscript, there are to be expected minor dialectic differences; and one of these appears as a marginal note by a different hand, on page 43 of the manuscript, where we are told that the sentence, "Is there corn? There is," which is given in the text as being *Ayan ta ixim?* *Ayan*, in Choltí, is *An ixim?* *An ach*, in Lacandón. A thorough study of possible east and west differences I have not yet made, however.

Finally, while I would not want to rest many deductions on the Berendt-Rockstroh list, standing alone, nevertheless this list does show a very marked grouping, as follows: First, it is clear that Chol or Choltí is more closely related to the entire Tzentál branch than it is to any of the others, as pointed out by Stoll; next, and what we would not have expected for geographical reasons, the northern or Yucatan Maya, while frequently distinct from all the dialects to the south of it, is nevertheless quite frequently in accord with the mountainous Guatemalan dialects, those of the Pokom and Quiché branches, and rarely with the intervening Tzentál-Chol, which in the majority of cases differs from both the other main territorial regions, the south and the north. Further, while in a certain number of cases the Chol-Tzentál agrees either with the Maya on its north or the Pokom-Quiché branches on its south, to the exclusion of the other, these agreements occur much more markedly with the north than with the south. So that we seem to have first, as a time phenomenon, a main division between an archaic or early language (directly back of Tzentál-Choltí) and a modern one (Maya and Quiché-Pokom); and second, as a geographical phenomenon, the northern or Maya branch, culturally and structurally closer to the Old Empire period than are the southern highland branches, the Quiché-Pokom. And this linguistic condition is exactly what the archæological evidence would lead us to expect, while the contrary would have led to hopeless difficulties in its resulting problems.

Let us then compare this central group of branches, that is, the Chol-Tzentál, with the Maya on the north and with the highland peoples, the Mame, Quiché, and Pokom branches on the south.

First, in the vocabularies. It is at least worthy of note that in the case of what we might call the terminology of the supermundane, or words particular to Mayan science, the Chol-Tzentál agrees with the Maya rather than with the Quiché; such as, for example, the roots of the words for sky, earth, wind, sun, moon, star, night, month, year, mountain, metal, stone; and in form, the words for the colors and numbers.

Before taking up the phonological comparisons I must add a brief description of the Mayance general alphabet, covering all the branches, which is as natural and as essential to their understanding as is the standard Sanskrit for the like purpose. We must first note that all stop consonants may be of four orders: surd, sonant, aspirated, or "cut," the last called *herida* in the early *Artes* or grammars. In English we have the surds *p*, *t*, *tz*, *ch*, and *c* (*c* palatal, from which is also to be distinguished a non-English guttural *k*—Tozzer's velar *k*), with their corresponding sonants *b*, *d*, *dz*, *j*, and *g*; to these is added in Sanskrit the aspirated series *ph*, *bh*, etc. In Mayance all sonants except *b* are wholly wanting, and in their place and that of the aspirated series we have a marked peculiarity in the cut or halted series, the letters of which sound as if each were successively choked back into the mouth and then released again from a dead stop; the expulsion of the breath seems to cease completely, and almost to come to an indrawing, before the stop sound is

sent out. In no better way can the various efforts of the early writers, nor the unity of the whole phenomenon, be correctly understood, than by placing these two series, the surd and the cut, together in pairs. We thus get the following Mayance general alphabet of vowels, semi-vowels, breathings, liquids, nasals, sibilants, and stops: *a, e, i, o, u, y, w, b, h, j, l, r, m, n, s, x, p, p', t, t', ʒ, ʒ', ch, ch', c, c', k, k'*. The *b* is placed as it is, because just as *i* passes insensibly from vowel through glide to consonant *y*, so does *u* pass through a glide and bilabial *w* to a closed *b*; all this is constantly apparent in the manuscripts in the use of *i* and *y* and of *u, v*, and *b*. The *j* has the Spanish value or strong *h* value. This *h* appears barred, *h*, in the San Buenaventura Maya grammar, and as a tailed *h* in Quiché, being denoted by special type in each case. The *x* is of course our *sh*. As to the stop consonants we have:

In Maya, *p, pp* (or a barred *p*), *t, th, tz, ɔ* (turned *c*), *ch, ch* (barred), *c, -, -, k'*; that is, the whole series except the next to last two, cut *c'* and uncut *k*.

In Quiché-Cakchiquel, by use of the Parra characters adapted from the manuscript forms for *c* and *g*, *p, pp, t, tt, ʒ, g*, (this is the *cuatrillo* with comma, for *ʒ'*), *ch, gh* (this is the *cuatrillo* with tailed *h*, for *ch'*), *c, g, k*, and *Ɛ*. Maldonado often uses a *tt*, which Flores calls geminated *t*, but rejects as "superfluous, since the sound of the doubled *t* is the same as that of the simple." The early manuscripts also use *pp*, obviously for the cut *p'*.

In Pokonchi-Pokomán-Kekchi we find only the *tresillo* *Ɛ*, evidently for the cut *k'*, though the writers knew of the Parra characters. In modern times Stoll found here the full series, except for *p'* and *t'*; and in the manuscripts it is possible that a distinction was felt between *ch* and *Ɛh*, and between *z* and *ʒ*, both of which pairs are apparently confused in use—a question which only exhaustive studies resulting in definite sound mutation rules between the various Mayance stocks can decide correctly.

In Mame we also find only the *tresillo* *Ɛ* used, which from Reynoso's description of it is clearly identifiable as *k'*. In Ixil, Stoll found the same series as in Pokom, lacking *p'* and *t'*, and the same remark will also apply here as above, for *ch, Ɛh, z, and ʒ*.

For the Tzentel group the difference of orthography impedes inferences; the writers make no mention of *letras heridas*, though the combinations *gc* and *hgc*, with Pineda's descriptions, point to a like status with Pokom or Mame. The Berendt-Rockstroh word-list indicates clearly the presence of several others, and this is confirmed by a number of manuscript Chiapan word-lists in my possession.

In our Choltí manuscript we find the same orthographic condition as in the Pokom and Mame, the *Ɛ* is used as a hard *c* or *k*, with considerable confusion, and with variations in the different hands, even in some Spanish words, as for example *Ɛomo* for *como*. This must represent the *k'*, while the use of *ch, Ɛh, z, ʒ* may indicate *ch'* and *ʒ'*, as above. We have no trace of a *t'*, but we have the *p'* clearly indicated by such expressions as: "*apretando los labios, pronunciado con fuerza*."

In addition to this, my Salto de Agua Chol word-list gives words with *t', ʒ', ch', and k'*, while the Rockstroh list affords *ʒ', ch', and k'*.

We may quite safely credit the Quiché group with all six pairs complete, and the Pokom-Mame with all but *p'* and *t'*, on the basis of Stoll's modern field evidence and in spite of the lack of showing for it in the manuscripts. The Maya has all but *c'* and *k*; and finally, the balance of the evidence, I think, inclines to an identity here of Choltí with Maya, and not unlikely the Tzentel group as well.

Passing now to a consideration of Mayance grammar, we find to begin with a most striking parallel between Choltí and Maya. The basic line of division in all Mayance conjugation is that between the neuter verb, the absolute verb and the passive verb on the one hand, and the transitive verb on the other; the former

are conjugated by the demonstrative pronouns, the latter by the possessive, since the action is regarded as becoming personal only when it affects some concrete object. In the Coronel Maya grammar of 1620 and in the San Buenaventura grammar of 1684 we find an exception to this rule, whereby the neuters in the present take a special form of the possessive conjugation, leaving the past and future in the demonstrative. In 1746 Beltrán objected to this as unsystematic, and changed it, though he made the result more irregular than ever by changing the active present instead of the neuter. But in the Choltí we find this identical alleged "irregularity" found in the Maya of 1620 and 1684, extending even to the use of the particle of "actuality" to define the present tense: *ximbal in-cah*, *yual in-vixnel*. Choltí also forms a neuter future stem in *-ac* the same as Maya, and in contrast to Quiché; though on the other hand it follows Quiché against Maya in using *x* as a future prefix.

Finally, and most striking of all, the letter *r* is missing entirely in the Huasteca, Maya, Tzental, Mame, and Choltí. It is present in the Pokom and Quiché groups, with *l*, being particularly frequent in the Quiché, and in both groups constantly replacing a Maya *y*, as in *rax*, *car*, for *yax*, *cay*, the words for green and fish in Quiché and Maya respectively. In Chortí the *l* disappears entirely, and all Choltí words with *l* are spelled with an *r*. This is without exception; all our mentioned Choltí sources having only *l*, and all the Chortí ones having only *r*. The Stephens list from Zacapa, which we have already classed as Pokomán on the basis of the vocabulary, fails as Chortí on this test also, the *l* occurring three times, in *holom*, *hal*, *akkal*, for head, maize-ear, and earth respectively, the very words also being Pokomán, and the correct Chortí forms being *hor*, *nar*, *tihí*. The only possible conclusion here is that in a town actually Chortí, Stephens got hold of a Pokomán native, the border being very near by, and hence his mistake. This is a striking instance of how much error can result from such ignorantly gathered word-lists. This particular one misled Gallatin, Berendt, Brasseur de Bourbourg, and Stoll into placing the Copan dialect in the Pokom group, separating that city linguistically from its proper place in the whole Chol region, reaching to Palenque and Ocosingo, and creating thereby a tremendous breach between the linguistic and the archæologic evidence.

This change from *l* to *r* is most interesting. When I was working out my material in 1912 from the Morán manuscript and Membreño, I took it to be a time change during the intervening 200 years, between 1695 and 1895, but with the evidence of the Galindo manuscript of 1834, discovered a short time ago, this seems a very radical change to have come about in only 140 years. But whether temporal or geographical, there is no possible doubt that the entire region from Copan to Palenque is linguistically one.

The Canon Ordoñez y Aguiar possessed, besides the text of the Popol Vuh, of which he has left us a translation distinct from that of Ximénez, a Tzental manuscript, which he called the *Provanza de Votan*, and had this survived it would certainly be one of our half-dozen most important Mayance documents, ranking with the Popol Vuh, the Xahila Cakchiquel Annals, the Torres Quiché History, and the Maya Chumayel and Ritual of the Bacabs. Without going into questions of mythology and origins involved in what Ordoñez and Nuñez de la Vega tell us of Votan and his people, the statement of the former that the Votanides ruled from their capital Na-chán, the House of the Serpents, or Palenque, over three other divisions of their empire—Yucatan, Tuhá (Ocosingo), and Chiquimula—comes close enough to history to merit some respect.¹

¹The Canon Ordoñez y Aguiar's work here referred to is his *Historia de la Creación*, etc." which is still in manuscript, though partly printed from an incomplete transcript by Léon. (See Léon, 1907.) The citation here made is on page 134, Chapter IX, note 57, page 53 of the manuscript. Brasseur de Bourbourg's change of Yucatan to Mayapan here is gratuitous and misleading.

Weighing all the ethnographic and linguistic evidence at my disposal, the following conclusions appear permissible. The Old Maya Empire has now been placed beyond reasonable doubt as having enjoyed its bloom period from about the year 200 to 600 A. D. This was the period of the great buildings and the perfection of the hieroglyphic writing, the Maya cultural apogee. At our first meeting in 1915, and arriving by largely different roads, Morley and I had both come to see this great culture as stretching across this "land of Tezulutlán," north of the central Guatemalan Altos—the Petén region—that is, through a *tierra caliente*, a broken country—the land of the great rivers. Of these great cities of the Old Maya Empire, Copan appears to me to have been the chief exoteric religious center, Palenque the esoteric and most sacred religious center, and Tikal as a non-sacred city larger than either, possibly the mart. The chronological and cultural unity of these three sites is unmistakable, and the whole district exactly maps this Choltí field we have been considering, and which is properly outlined on Stoll's map, plus what we now call Itzá territory, which is now linguistically Yucatecan Maya.

At this point a further element enters. About the year 600 (we can only say) "something happened"; the culture breaks, and even the large cities were entirely abandoned, much the same sort of thing as seems to have taken place in Yucatan eight centuries later after the fall of Mayapan, and there due to a mere defeat in war, and also just what happened at a stroke at Tayasal when Ursúa conquered that city in 1697. We know that after the fall of Mayapan the Itzá abandoned their homes and went south to Petén, long before the Spanish period; and Morley's idea here, that this was a *return* to an ancient homeland, seems to me most apt.

What we do know and may count upon as certain is that with the break-up of the Old Empire the technique of the inscriptions failed somewhat, though the knowledge of the writing was not lost altogether. The thread is carried on for at least another 800 years of monuments, and then through chronicles and manuscripts—the codices—to past the time of the Spanish entry. Broadly speaking, Maya *science* did two things: it went north, and it deteriorated greatly, without, however, dying out entirely, even to this day. The contents of the different Maya manuscripts, the medical lore, and traces of astronomical learning show this. This does not mean that much was not preserved in the south also; indeed much was, and I am satisfied learning of even a higher philosophical character than that of the north. The south has not yet yielded what it holds—has only glimpsed it to us. But the technique of the architecture and the inscriptions did go north, and the later southern cities were much inferior in type, not only to those of the Old Empire, but also to those of the New Empire in the north.

Returning once more to our linguistic theme, perhaps the most marked point is the separateness structurally of the Quiché-Pokom, the highland Guatemalan branches from the others; and the cultural gap in that region, from say 600 A. D. to perhaps 1100 A. D., is also far greater than in the north. We go back through the Quiché manuscripts to origins, to mythology and cosmogony, no doubt, but with a cultural and historical gap. Balam Quiché, who united (new) Chiquimula to Utatlán, eleven generations before the Spanish Conquest, that is to say, about 1200, was the "ninth" in the Quiché line and probably the first historical personage, since the one before him was Hunahpú, the divine youth, who was the hero of the Popol Vuh; and two reigns before Hunahpú was Acxopil, who reigned 200 years! All this agrees not only with the failure of Ordoñez to include a Quiché realm in his four divisions of the Votanide empire, but also with the linguistic evidence. If by "Yucatan" in the citation from Palacio at the head of this Appendix, we

understand "Laguna de Términos," it fits in completely with what is said by Ordoñez.

Linguistically the language of Tezulutlán, or what we have heretofore called Choltí, is rooted in northeastern Chiapas, with the Tzental tongues; structurally closest stands probably the little-known adjoining Mame, next closest the northern Maya, and then last the highland pre-Conquest kingdoms of the Quiché and Pokom. The letter *r* is unknown to all the other Mayance, save the last two; and when they developed it, the same influences seem to have expelled the *l* from the by that time divorced far-eastern Choltí, and left them Chortí. Languages grow and diversify under the spur of up-springing civilizations. The separate growth of Quiché and Maya, therefore, would correspond to the growth of the two new kingdoms; and that the Maya should have stayed closer to the Old Empire tongue, the Tezulutleca one may call it, than the Quiché, is to be expected from the now established closer relationship between the Old and New Empires than between the Old Empire and the later Guatemala highland kingdoms, both in cultural tradition and sciences. Meanwhile the Tzental, Mame, and Choltí would live on, in the past, and changing or separating less—just as Iceland has done, compared say to Sweden.

In closing I may say that if we disregard the traditions of the Votanide Empire, as pertaining rather more to the realm of mythology than to that of history, and if we do not carry history back of the actual Old Empire period, just as later we have to reject the events back of Balam Quiché, as probably mythological in nature, and if we posit the four kingdoms, as Ordoñez gives them: (1) Tul-há or Ocosingo, (2) Na-chán or Palenque, (3) Chiquimula or Copan, and (4) Yucatan or Tikal, as we have indicated; if we bring this period to an end with the events of about 600 A. D., followed by a dispersion and rebirth in the north, toward 900 or 1000, with Uxmal as the chief center; and the Nahuatl influx coming in about 1200, resulting in the growth of *new* Chichén Itzá, followed by the events of the chronicles in the Books of Chilán Balam down to the fall of Mayapán, and the return south of the Itzá to Tayasal, spreading the newly-grown Maya-Itzá tongue over what may have been Tezulutleca in Old Empire days; and if meanwhile a historical connection was maintained in the south of which we have no present knowledge, resulting in a Quiché rebirth somewhat later than that at Uxmal, becoming definitely historical with Balam Quiché, and his incorporation of the eastern Chiquimula survival of the Copan branch—we will have stated little that is new in itself, but we will have brought together the ethnographic and linguistic evidence, with the historical and chronological evidence which has been growing under Morley's work, and with the cultural and very positive stylistic evidence which Spinden has so skillfully brought together.

There remains to be mentioned one final point of no small importance. Prior to Mayance times, the Central American territory washed by languages generally classed in with northern South American, and now reduced to scantiest remains north of Nicaragua, namely, to the little Chiapanec "linguistic island," in the mountain knot of Chiapas, occupying a linguistic position similar to that of the Pyrenees or Wales. And finally, that the Tezulutlán empire, starting from around Ocosingo, and perhaps by entry through the Usumacinta delta, as Ordoñez relates, should then have spread first across the fertile northern regions through Peten to Golfo Dulce, leaving the mountain range and the Pacific slope to the earlier inhabitants, is just as natural as it is that its dispersion should have later been down over these same northern plains into Yucatan, leaving the highland occupation, with the resulting historical Quiché kingdoms, to a later date.

BIBLIOGRAPHY.

- AGUILAR, P. SANCHEZ DE.
1639. (See Sanchez de Aguilar, P.)
- ALFORD, W. V.
1899. Fragments from prehistoric America. (Home magazine, Jan. 1899, p. 8-17.)
- ALLEN, E. A.
1885. The prehistoric world; or, vanished races. Cincinnati.
- ALLEN, G. M.
1910. (See Tozzer, A. M., and G. M. Allen.)
- ALSTON, E. R.
1879-1882. Mammalia. (Biologia Centrali-Americana, zoology.)
- ANCONA, E.
1878-1905. Historia de Yucatán desde la época más remota hasta nuestros días. 5 vols. Mérida.
- ARCTOWSKI, H.
1910-1913. Studies on climate and crops. (American geograph. soc., bull., vol. xlii, p. 270-282, 481-495; vol. xlv, p. 598-606, 745-760; vol. xlv, p. 117-131.)
- ARNOLD, C., and F. J. T. FROST.
1909. The American Egypt. A record of travel in Yucatan. New York.
- AUBIN, J. M. A.
1893. (See Codex Aubin, 1576.)
- BANCROFT, H. H.
1882. The native races. 5 vols. San Francisco.
- BELTRÁN DE SANTA ROSA, MARIA P.
1746. Arte de el idioma Maya. México.
1859. Same. Ed. 2. Mérida.
- BEUCHAT, H.
1912. Manuel d'archéologie Américaine. p. i-xli, 1-773. Paris.
- BODDAM WHETHAM, J. W.
1877. Across Central America. (185 pages. Copan mentioned on p. 168.) London.
- BOWDITCH, C. P.
1900. The lords of the night and the tonalamatl of the Codex Borbonicus. (American anthropologist, new ser., vol. 2, p. 145-154.)
1901. A method which may have been used by the Mayas in calculating time. Cambridge.
1901, a. Memoranda on the Maya calendars used in the Books of Chilán Balam. (American anthropologist, new ser., vol. 3, p. 129-138.)
1901, b. On the age of Maya ruins. (American anthropologist, new ser., vol. 3, p. 697-700.)
1901, c. Notes on the report of Téobert Maler in Memoirs of Peabody museum, vol. ii, no. i. Cambridge.
1903. Notes on the report of Téobert Maler in Memoirs of Peabody museum, vol. ii, no. ii. Cambridge.
- BOWDITCH, C. P.
1903, a. A suggestive Maya inscription. Cambridge.
1904. Mexican and Central American antiquities, calendar systems, and history. (Twenty-four papers by Eduard Seler, E. Förstemann, Paul Schellhas, Carl Sapper, E. P. Dieseldorff. Translated from the German under supervision of C. P. Bowditch. U. S. bureau of American ethnology, bull. 28.) Washington.
1906. The temples of the cross, of the foliated cross, and of the sun at Palenque. Cambridge.
1909. The dates and numbers of pages 24 and 46 to 50 of the Dresden Codex. (Putnam anniversary volume, p. 268-298.) New York.
1910. The numeration, calendar systems and astronomical knowledge of the Mayas. Cambridge.
- BOWDITCH, C. P., and F. C. LOWELL.
1891. Explorations in Honduras. Boston.
- BRADFORD, A. W.
1841. American antiquities and researches into the origin and history of the red race. New York.
- BRANSFORD, J. F.
1882. Report on explorations in Central America in 1881. (Smithsonian institution, report for 1882, p. 803-825.)
- BRASSEUR DE BOURBOURG, C. E.
1857-1859. Histoire des nations civilisées du Mexique et de l'Amérique-centrale, durant les siècles antérieurs à Christophe Colomb. 4 vols. Paris.
1861. (See Popol vuh. 1861.)
1866. Palenqué et autres ruines de l'ancienne civilisation du Mexique. Paris.
1867. Rapport sur les ruines de Mayapan et d'Uxmal au Yucatan. (Archives de la commission scientifique du Mexique, tom. ii, p. 234-288.)
1867, a. Extracts from two letters written on July 15, 1865, and Dec. 2, 1865. (Archives de la commission scientifique du Mexique, tom. ii, p. 298-311.) (Brasseur de Bourbourg's visit to Copan in 1863 is described in these letters.)
1869-1870. (See Codex Tro-Cortesianus.)
- BRINTON, D. G.
1882. The Maya chronicles. (Brinton's Library of aboriginal American literature, no. i.) Philadelphia.
1882, a. American hero-myths. A study in the native religions of the western continent. Philadelphia.

BRINTON, D. G.

1882, *b*. Books of Chilam Balam. (Penn monthly, vol. xiii, p. 261-275; (Reprinted by the Numismatic and antiquarian society of Philadelphia, p. 1-19.)

1885. The annals of the Cakchiquels. The original text, with a translation, notes, and introduction. (Brinton's Library of aboriginal American literature, no. vi.) Philadelphia.

1886. On the ikonomatic method of phonetic writing with special reference to American archæology. (Proc. American philos. soc., vol. xxiii, p. 503-514.)

1886, *a*. The phonetic elements in the graphic system of the Mayas and Mexicans. (American antiquarian and oriental journal, vol. viii, p. 347-357.)

1887. Critical remarks on the editions of Diego de Landa's writings. (Proc. American philos. soc., vol. xxiv, p. 1-8.)

1890. Essays of an Americanist. Philadelphia.

1893. The native calendar of Central America and Mexico. A study in linguistics and symbolism. (Proc. American philos. soc., vol. xxxi, p. 258-314.)

1894. What the Maya inscriptions tell about. (Archæologist, vol. ii, p. 325-328.)

1895. A primer of Mayan hieroglyphics. (Univ. Penn. pub., series in philology, literature, and archæology, vol. iii, no. 2.)

1896. The myths of the new world.

BROOKS, C. F.

1916. World-wide changes of temperature. (Geographical review, vol. ii, p. 249-255.)

CARMABLICH, J. G. F. R.

1824. (See Hassel, G., and J. G. F. R. Carmablich, 1824.)

CARPENTER, F. G.

1892. Relics of past ages. Interesting discoveries in Honduras. (Boston Herald, July 11, 1892.)

CARRILLO Y ANCONA, C.

1865. Estudio histórico sobre la raza indígena de Yucatán. Vera Cruz.

1870. Disertación sobre la historia de la lengua Maya ó Yucateca. (Revista de Mérida, p. 128.)

1871. Compendio de la historia de Yucatán. Mérida.

1883. Historia antigua de Yucatán seguida de las disertaciones del mismo autor relativas al propio asunto. Ed. 2. Mérida.

CATHERWOOD, F.

1844. Views of ancient monuments in Central America, Chiapas, and Yucatan. London.

CENTRAL AMERICA.

1853. Correspondence as to claims of Great Britain relative to the Mosquito Coast, Honduras, and Yucatan. U. S. Senate doc. 27, 32d Cong., 2d Sess., p. 1-13.

CHAMBERLAIN, A. F.

1899. In memoriam: Daniel Garrison Brinton. (Jour. American folklore, vol. xii, p. 215-225.)

CHARNAY, D.

1887. The ancient cities of the new world, being travels and explorations in Mexico and Central America from 1857-1882. Translated from the French by J. Gonino and Helen S. Conant. London.

1903. Les explorations de Téobert Maler. (Société des Américanistes de Paris, Journal, new ser., tom. 1, p. 289-308.)

CHILAM BALAM OF CHUMAYEL.

1913. The book of Chilam Balam of Chumayel, with introduction by G. B. Gordon. (Univ. Penn., museum, anthropological pubs., vol. v.) Philadelphia.

CODEX AUBIN 1576.

1893. Histoire de la nation mexicaine depuis le départ d'Aztlan jusqu'à l'arrivée des conquérants espagnols (et au delà 1607). Manuscrit figuratif accompagné de texte en langue nahuatl ou mexicaine suivi d'une traduction en français par feu J. M. A. Aubin. Reproduction du codex de 1576. Paris.

CODEX BOTURINI.

1831. Fac-simile of an original Mexican hieroglyphic painting from the collection of Boturini. (Kingsborough, E. K., Antiquities of Mexico, vol. i, no. 3.) London.

CODEX (MAPAS) DE ACOLHUACAN.

(1889?) Mapas de Acolhuacan. Plate iii. Mapped Tepechpan. Histoire synchrone et seigneuriale de Tepechpan et de Mexico.

CODEX CORTESIANUS.

1883. Photographié et publié pour la première fois par León de Rosny. Paris. (This is the first part of the Codex Tro-Cortesianus).

CODEX DRESDENSIS.

1880. Die Maya-Handschrift der Königlichen Bibliothek zu Dresden; herausgegeben von Prof. Dr. E. Förstemann. Leipzig.

1892. Same. Ed. 2. Dresden.

CODEX MENDOZA.

1831. Copy of the collection of Mendoza preserved in the Selden collection of manuscripts, in the Bodleian library at Oxford. (Kingsborough, E. K., Antiquities of Mexico, vol. i, no. 1.) London.

- CODEx PERESIANUS.**
 1864. Manuscrit dit Mexicaine No. 2 de la Bibliothèque Impériale. Photographié par ordre de S. E. M. Duruy, Ministre de l'Instruction Publique, Président de la Commission Scientifique de Mexique. Paris.
 1887. Manuscrit hiératique des anciens Indiens de l'Amérique Centrale conservé à la Bibliothèque nationale de Paris, avec une introduction par Léon de Rosny. (Publié en couleurs. Ed. 2.) Paris.
 1888. Same as 1887, but not in colors.
 1909. Redrawn and slightly restored, and with the coloring as it originally stood, so far as possible, given on the basis of a new and minute examination of the codex itself. Drawn and edited by William Gates. Point Loma.
- CODEx RIOS.**
 1900. (See Codex Vaticanus 3738.)
- CODEx TELLERIANO-REMENSIS.**
 1899. Manuscrit mexicain du cabinet de Ch. M. Le Tellier, archevêque de Reims à la Bibliothèque nationale (Ms. mexicain, no. 385) reproduit en photochromographie aux frais du Duc de Loubat. 1899.
- CODEx TRO-CORTESIANUS.**
 1892. Códice Maya denominado Cortesiano que se conserva en el Museo arqueológico nacional (Madrid). Reproducción fotocromolitográfica ordenada en la misma forma que el original hecha y publicada bajo la dirección de D. Juan de Dios de la Rada y Delgado y D. Jerónimo López de Ayala y del Hierro. Madrid. (To this should be added the plates reproducing the Codex Troanus taken from Abbé C. E. Brasseur de Bourbourg's Manuscrit Troano. Paris. 1869-70. These two codices are parts of one original.)
- CODEx VATICANUS 3738.**
 1900. Il manoscritto messicano vaticano 3738 detto il Codice Rios. Riprodotto in fotocromografia a spese di sua eccellenza il duca di Loubat per cura della biblioteca vaticana. Roma.
- CÓDICE PÉREZ.**
 Cronologia antigua de Yucatán y examen del método con que los Indios contaban el tiempo; sacada de varios documentos antiguos por Don Juan Pío Pérez. (Manuscript in library of museum of University of Pennsylvania, p. 1-258.)
- COGOLLUDO, D. LÓPEZ DE**
 1688. Historia de Yucathan. Madrid.
 1842. Same. Ed. 2, 2 vols. Campeche.
 1867-1868. Same. Ed. 3, 2 vols. Mérida.
- COOK, O. F.**
 1909. Vegetation affected by agriculture in Central America. (U. S. bureau of plant industry, bull. 145.)
- CORONEL, J.**
 1620. Arte en lengua de Maya. Mexico.
- CRESSON, H. T.**
 1892. Remarks upon the graphic system of the ancient Mayas. (Science, vol. xx, p. 25, 26.)
 1892, a. The antennæ and sting of Yikilcab as components in the Maya day signs. (Science, vol. xx, p. 77-79.)
 1892, b. Phonetic value of the Ch'i glyph in the Maya graphic system. (Science, vol. xx, p. 101-102.)
- CULIN, S.**
 1900. Bibliography of Dr. Brinton. (Brinton memorial meeting. Report of the memorial meeting held Jan. 16, 1900, under the auspices of the American philosophical society by 26 learned societies in honor of the late Daniel Garrison Brinton, M. D., p. 42-67.) Philadelphia.
- DELLENBAUGH, F. S.**
 1901. The North Americans of yesterday. (Brief mention of Copan on p. 242, 351.)
- DIESELDORFF, E. P.**
 1904. Two vases from Chama, by E. P. Dieseldorff, Eduard Seler, and E. Förstemann. (U. S. bureau of American ethnology, bull. 28, p. 635-666.)
- DURÓN, R. E.**
 1909. Las ruinas de Copán. (San Salvador. Museo nacional, Anales, tom. 4, p. 100-109.)
- EISEN, G.**
 1893-1894. Ruins of Copan. (Great divide, vol. x.)
- FERNÁNDEZ, L.**
 1881. San Salvador y Honduras el año 1576. Con prefacio y notas del Dr. A. Frantzius . . . tr. del alemán por Don Manuel Carazo. (Colección de documentos para la historia de Costa Rica, tom. 1, p. 1-52.)
 1892. Lenguas indígenas de Centro-América en el siglo XVIII, según copia del Archivo de Indias, hecha por el licenciado don León Fernández y publicada por Ricardo Fernández Guardia y Juan Fernández Ferraz para el 9º Congreso de Americanistas. San José de Costa Rica.
- FEWKES, J. W.**
 1898. Archæological expedition to Arizona in 1895. (U. S. bureau of American ethnology, 17th annual report, 1895-96, p. 519-744.)
 1904. Two summers' work in pueblo ruins. (U. S. bureau of American ethnology, 22d annual report, 1900-01, p. 1-195.)
- FLORES, FRAY I.**
 1753. Arte de la lengua metropolitana del reyno Cakchiquel ó Guatemalteco. Guatemala.
- FÖRSTEMANN, E. W.**
 1880. (See Codex Dresdensis.)
 1887. Zur Entzifferung der Mayahandschriften. Dresden. (For translation, see U. S. bureau of American ethnology, bull. 28, p. 393-472.)
 1892. (See Codex Dresdensis.)

- FÖRSTEMANN, E. W.
 1894. Die Mayahieroglyphen (Globus, Bd. XLVI, p. 78-80.)
 1901. Commentar zur Mayahandschrift der Königlichen öffentlichen Bibliothek zu Dresden. Dresden. (For translation, see E. W. Förstemann, 1906.)
 1902. Der zehnte Cyklus der Mayas. (Globus, Bd. lxxxii, p. 140-143.)
 1902, a. Commentar zur Madrider Mayahandschrift. Dantzig.
 1902, b. Eine historische Maya-Inschrift. (Globus, Bd. lxxxii, p. 150-153.)
 1903. Commentar zur Pariser Mayahandschrift. Dantzig.
 1904. Aids to the deciphering of the Maya manuscripts. (U. S. bureau of American ethnology, bull. 28, p. 393-472.)
 1904, a. Die Stela J von Copan. (Globus, Bd. lxxxv, p. 361-363.)
 1906. Commentary on the Maya manuscript in the Royal public library of Dresden. (Harvard univ., Peabody museum papers, vol. iv, no. 2, p. 49-266; translation of E. W. Förstemann, 1901.)
- FRANCK, H. A.
 1916. Tramping through Mexico, Guatemala, and Honduras. (Brief mention of Copan on p. 291, 292.) New York.
- FRANTZIUS, A. VON.
 1873. San Salvador und Honduras im Jahre 1576. (Amtlicher Bericht des Licenciaten Dr. Diego García de Palacio.) Berlin.
- FROST, F. J. T.
 1909. (See Arnold, C., and F. J. T. Frost.)
- FUENTES Y GUZMÁN, F. A. DE
 1689. Historia de Guatemala, ó Recordación Florida. Pt. 2, 4 vols. (Photographic reproduction by W. Gates of manuscript copy by Mariano Padilla. Original Fuentes y Guzmán manuscript now in the archives of the cabildo of Guatemala city, Guatemala.)
 1882-1883. Historia de Guatemala ó Recordación Florida escrita el siglo xvii . . . Publicada por primera vez con notas é ilustraciones. D. Justo Zaragoza. Pt. 1, 2 vols. Madrid.
- GACETA OFICIAL DE HONDURAS.
 1868. Relación importante. (Gaceta oficial de Honduras, tom. 6, no. 91, p. 1-4, Nov. 11, 1868.)
- GALINDO, J.
 1834. Informe de la Comisión Científica formada para el reconocimiento de las Antigüedades de Copan, por decreto de 15 de Enero de 1834 del cº gefe supremo del Estado de Guatemala, Dr. Mariano Gálvez. (Manuscript Gates collection.) (For translation, see Appendix XI.)
 1835. Central America. (London literary gazette and journal of belles lettres, arts, sciences, no. 965, p. 456, 457.)
- GALINDO, J.
 1835, a. The ruins of Copan, in Central America. (Archæologia Americana. Transactions and collections of the American antiquarian society, vol. ii, p. 543-550.)
 1836. Une lettre en 36 pages datée de Copan avec dix dessins assez bien exécutés. (Bulletin de la société de géographie, deuxième série, tom. v, p. 253-291. Paris. See also Walckenaer, Baron, and others.)
 1836, a. Notions transmises par M. Juan Galindo, officier supérieur de l'Amérique Centrale, sur Palenque et autres lieux circonvoisins. (Antiquités mexicaines, tom. i, p. 67-76.) Paris.
- GALLATIN, ALBERT.
 1845. Notes on the semi-civilized nations of Mexico, Yucatan, and Central America. (Trans. American ethnological society, vol. i, p. 1-352.) New York.
- GANN, T.
 1900. Mounds of Northern Honduras. (U. S. bureau of American ethnology, 19th annual report, 1897-98, pt. 2, p. 661-692.)
 1919. The Maya Indians of southern Yucatan and northern British Honduras. (U. S. bureau of American ethnology, bull. no. 64.)
- GARCIA PELÁEZ, F. DE P.
 1851-1852. Memorias para la historia del antiguo reino de Guatemala. 3 vols. Guatemala.
- GATES, W. E.
 1900. The Maya and Tzental calendars. Comprising the complete series of days, with their positions in the month, for each one of the fifty-two years of the cycle, according to each system. Cleveland.
 1910. Commentary upon the Maya-Tzental Codex Pérez. (Harvard univ., Peabody museum papers, vol. vi, no. 1, p. 1-64.)
- GATSCHE, A. S.
 1897. Die Erforschung der Ruinen von Copan in Honduras. (Globus, Bd. lxxi, p. 99.)
 1902. The hieroglyphic stairway, ruins of Copan. By George Byron Gordon. (A review.) (American anthropologist, new ser., vol. 4, p. 302, 303.)
- GINZEL, F. K.
 1906-1914. Handbuch der mathematischen und technischen Chronologie. 3 vols. Leipzig.
- GODMAN, F. D.
 1897-1904. (See Salvin, O., and F. D. Godman.)
- GOLDENWEISER, A. A.
 1916. Diffusion vs. independent origin: a rejoinder to Professor G. Elliot Smith. (Science, new ser., vol. xlv, p. 531-533.)

- GOODMAN, J. T.
1897. The archaic Maya inscriptions. (*Biologia Centrali-Americana*, archæology. Appendix.) London.
1905. Maya dates. (*American anthropologist*, new ser., vol. 7, p. 642-647.)
- GORDON, G. B.
1896. Prehistoric ruins of Copan, Honduras. A preliminary report of the explorations by the museum, 1891-1895. (*Harvard univ., Peabody museum memoirs*, vol. i, no. 1, p. 1-48. For Spanish translation see G. B. Gordon, 1914.)
1898. The mysterious city of Honduras. An account of recent discoveries in Copan. (*Century*, vol. lv, p. 407-419.)
1898, a. Researches in the Uloa Valley, Honduras. Report on explorations by the museum, 1896-97. (*Harvard univ., Peabody museum memoirs*, vol. i, no. 4, p. 93-136. For Spanish translation, see G. B. Gordon, 1914.)
1898, b. Caverns of Copan, Honduras. Report on explorations by the museum, 1896-97. (*Harvard univ., Peabody museum memoirs*, vol. i, no. 5, p. 137-148. For Spanish translation see G. B. Gordon, 1914.)
1899. The ruined city of Copan. (*American geograph. soc., bull.*, vol. xxxi, p. 39-50.)
1901. The wonderful city of Copan. (*Daily Picayune*, New Orleans, La. Oct. 20, 1901.)
1902. The hieroglyphic stairway, ruins of Copan. Report on explorations by the museum. (*Harvard univ., Peabody museum memoirs*, vol. i, no. 6, p. 149-186. For Spanish translation see G. B. Gordon, 1914.)
1902, a. On the interpretation of a certain group of sculptures at Copan. (*American anthropologist*, new ser., vol. 4, p. 130-143.)
1902, b. On the use of zero and twenty in the Maya time system. (*American anthropologist*, new ser., vol. 4, p. 237-275.)
1909. *Conventionalism and realism in Maya art at Copan, with special reference to the treatment of the macaw.* (Putnam anniversary volume, p. 191-195.) New York.
1913. (See *Chilam Balam* of Chumayel.)
1914. *Ruinas prehistóricas de Copán.* Traducido del Inglés por Juan A. Soto Mayor. (*El Comercio*, San Pedro Sula, Honduras, Febr. and March, 1914.)
1916. A contribution to the archæology of Middle America. (Holmes anniversary volume, p. 137-141.) Washington.
1918. The trail of the golden dragon. (*Univ. Penn. museum journal*, vol. ix, p. 29-38.)
- GRATACAP, L. P.
1885. Ruins at Palenque and Copan. (*American antiquarian and oriental journal*, vol. vii, p. 193-207.)
- GUARDIA, R. F., y J. F. FERRAZ.
1892. (See Fernández, L., 1892.)
- GUERNSEY, S. J.
1919. (See Kidder, A. V., and S. J. Guernsey.)
- GUTHE, C. E.
1920. A possible solution of the number series on pages 51 to 58 of the Dresden Codex. (*Harvard univ., Peabody museum papers*, vol. vi, No. 2.)
- HAMY, J. T. E.
1886(?) *Essai d'interprétation d'un des monuments de Copan (Honduras).* (*Décades américanæ, Mémoires d'archéologie et d'ethnographie américaines*, 1^{re} and 2^e Décades, p. 83-89.) Paris.
- HASSEL, G., and J. G. F. R. CARMABLICH.
1824. *Vollständige und neueste Erdbeschreibung von Reiche Mexico, Guatemala und West Indien.* Weimar.
- HELLAND-HANSEN, B., and F. NANSEN.
1916. *Temperaturschwankungen des Nordatlantischen Ozeans und in der Atmosphäre. Einleitende Studien über die Ursachen der klimatologischen Schwankungen.* (*Videnskabselskabet-Skrifter, Math. Naturv. Klasse*, 1916, Art. 9, p. 1-341.)
- HEWETT, E. L.
1911. Two seasons' work in Guatemala. (*Archæological institute of America, bull.*, vol. ii, p. 117-134.)
1912. The excavations at Quirigua in 1912. (*Archæological institute of America, bull.*, vol. iii, p. 163-171.)
1916. Latest work of school of American archæology at Quirigua. (Holmes anniversary volume, p. 157-162.) Washington.
- HILDERBRANDSSON.
1916. (Summary in *Nature*. vol. 97, p. 228, of Hilderbrandsson's article appearing in *Kungl. Svenska Vetenskapsakademiens Handlingar*, Bd. 51, no. 8.)
- HOLDEN, E. S.
1881. *Studies in Central American picture-writing.* (U. S. bureau of American ethnology, 1st annual report, 1879-80, p. 205-245.)
- HOLMES, W. H.
1907. On a nephrite statuette from San Andrés Tuxtla, Vera Cruz, Mexico. (*American anthropologist*, new ser., vol. 9, p. 691-701.)
- HONDURAS EXPEDITION.
1891. The Honduras expedition. (*Harpers weekly*, vol. xxxv, no. 1823, Nov. 28, 1891, p. 943.)
- HOUGH, W.
1914. Culture of the ancient pueblos of the upper Gila River region, New Mexico and Arizona. Second Museum-Gates expedition. (U. S. national museum, bull. 87.) Washington.

- HOWE, G. P.
1911. The Ruins of Tuloom. (*American anthropologist*, new ser., vol. 13, p. 539-550.)
- HRDLÍČKA, A.
1903. The region of the ancient "Chichimecs," with notes on the Tepecanos and the ruin of La Quemada, Mexico. (*American anthropologist*, new ser., vol. 5, p. 385-440.)
- HUMBOLDT, A. DE.
1827. *État présent de la République de Centro-America ou Guatémala, d'après des documents manuscrits.* (*Nouvelles annales des voyages*, vol. 35, p. 281-330.) Paris.
- HUNTINGTON, E.
1905. Explorations in Turkestan, with an account of the basin of Eastern Persia and Sistan. (*Carnegie Inst. Wash. pub. no. 26*, p. 157-315.)
1907. The pulse of Asia. A journey in Central Asia, illustrating the geographic basis of history. Boston.
1911. Palestine and its transformation. Boston.
1913. Guatemala and the highest native American civilization. (*Proc. American philos. soc.*, vol. lii, p. 467-487.)
1914. The climatic factor as illustrated in arid America. . . with contributions by Charles Schuchert, Andrew E. Douglass, and Charles J. Kullmer. (*Carnegie Inst. Wash. pub. no. 192*.)
1915. Civilization and climate. New Haven.
1917. Maya civilization and climatic changes. (*Proc. International congress of Americanists*, 19th sess., p. 150-164, 1915.) Washington.
1918. The sun and the weather: new light on their relation. (*Geographical review*, vol. 5, p. 483-491.)
- ISAGOGE HISTÓRICO.
1892. *Isagoge histórico apologético general de todas las Indias.* Madrid.
- JOYCE, T. A.
1913. (See Maudslay, A. P., and T. A. Joyce.)
1914. *Mexican archæology.* New York.
- JUARROS, D.
1808. *Compendio de la historia de la ciudad de Guatemala.* Guatemala.
1823. Same. English ed. London.
1857. Same. Ed. del museo guatemalteco, 2 vols. Guatemala.
- KIDDER, A. V., and S. J. GUERNSEY.
1919. *Archæological explorations in north-eastern Arizona.* (U. S. bureau of American ethnology, bull. 65.) Washington.
- KINGSBOROUGH, E. K.,
1831-1848. *Antiquities of Mexico.* 9 vols. London.
- LANDA, D. DE.
1864. *Relation des choses de Yucatan. . . texte espagnol et traduction française. . . par l'Abbé Brasseur de Bourbourg.* Paris.
- LANDA, D. DE.
1881. *Relación de las cosas de Yucatán.* 1566. Reprint 1881. (Rosny, L. de. *Ensayo sobre la interpretación de la escritura hierática de la América Central.* Traducción anotada y precedida de un prólogo por D. Juan de Dios de la Rada y Delgado. Apéndice 1, p. 71-114.) Madrid.
1900. *Relación de las cosas de Yucatán.* (Colección de documentos inéditos relativos al descubrimiento, conquista y organización de las antiguas posesiones españolas de Ultramar, ser. 2, tom. 13, p. 265-411.)
- LA ROCHEFOUCAULD, F. A. DE.
1888. *Palenque et la civilisation maya.* Paris.
- LEEMANS, C.
1878. *Description de quelques antiquités américaines conservées dans le Musée royal néerlandais d'antiquités, à Leide.* (*International congress of Americanists*, 2d session, Luxembourg, 1877; *Comptes-rendus*, tom. 2, p. 283-302.)
- LEHMANN, W.
1909. *Methods and results in Mexican research.* (Translated from the German by Seymour de Ricci. Paris. Originally published in the *Archiv für Anthropologie*, vol. vi, 1907, p. 113-168.)
1910. *Ergebnisse einer Forschungsreise in Mittelamerika und México 1907-1909.* (*Zeitschrift für Ethnologie*, Bd. 42, p. 687-749.)
- LEÓN, N.
1907. *Bibliografía Mexicana del siglo xviii, sección 1. pt. 4. México.* (Contains part of Ordoñez y Aguiar, ca. 1790.)
- LEÓN PINELO, A. DE.
1639. *Relación en el Consejo Real de las Indias, sobre la pacificación y población de las provincias del Manché; Lacandon, que pretende hazer Don Diego de Vera Ordoñez de Villaquirán.*
- LE PLONGEON, A.
1885. *The Maya alphabet.* (*Scientific American*, supplement, vol. xix, no. 474, p. 7572-7573.)
1886. *Sacred mysteries among the Mayas and the Quiches, 11,500 years ago.* New York.
- LIZANA, B. DE.
1893. *Historia de Yucatán. Devocionario de Ntra. Sra. de Izamal y conquista espiritual.* (Reprint, including facsimile of title-page of original edition, Valladolid, 1633.) México.
- LÓPEZ DE AYALA Y DEL HIERRO, J.
1892. (See *Codex Tro-Cortesianus*.)
- LÓPEZ DE COGOLLUDO, D.
(See Cogolludo, D. López de, 1688.)
- LOUBAT, J. F. DUC DE.
1899. (See *Codex Telleriano-Remensis*.)
1900. (See *Codex Vaticanus 3738*.)

- LOWELL, F. C.
1891. (See Bowditch, C. P., and F. C. Lowell.)
- LUMHOLTZ, C.
1902. Unknown Mexico. 2 vols. New York.
- MALER, T.
1901. Researches in the central portion of the Usumatsintla valley. Report of explorations for the museum, 1898-1900. (Harvard univ., Peabody museum memoirs, vol. ii, no. 1, p. 1-75.)
1903. Researches in the central portion of the Usumatsintla valley. Reports of explorations for the museum. (Harvard univ., Peabody museum memoirs, vol. ii, no. 2, p. 77-208.)
1908. Explorations of the upper Usumatsintla and adjacent region. Altar de Sacrificios; Seibal; Itsimté-Sácluk; Cankuen. Reports of explorations for the museum. (Harvard univ., Peabody museum memoirs, vol. iv, no. 1, p. 1-49.)
- 1908, a. Explorations in the department of Peten, Guatemala, and adjacent region. Topoxté; Yaxhá; Benque Viejo; Naranjo. Reports of explorations for the museum. (Harvard univ., Peabody museum memoirs, vol. iv, no. 2, p. 53-127.)
1911. Explorations in the department of Peten, Guatemala. Tikal. Report of explorations for the museum. (Harvard univ., Peabody museum memoirs, vol. v, no. 1, p. 1-91.)
- MAPPE DE TEPECHPAN
(See Codex (Mapas) de Acolhuacan.)
- MAUDSLAY, A. C. and A. P.
1899. A glimpse at Guatemala and some notes on the ancient monuments of Central America. London.
- MAUDSLAY, A. P.
1886. Exploration of the ruins and site of Copan, Central America. (Proc. Royal geographical society, new ser., vol. viii, p. 568-595, plate and map opposite p. 608.) London.
- 1889-1902. Archæology. (Biologia Centrali-Americana, 4 vols.) London.
1892. The ancient civilization of Central America. (Nature, vol. 45, p. 617-622.)
- MAUDSLAY, A. P., and T. A. JOYCE.
1913. A study of Maya art. By Herbert J. Spinden. (Review, in Current anthropological literature, vol. ii, p. 238-247.)
- MEANS, P. A.
1916. Some objections to Mr. Elliot Smith's theory. (Science, new ser., vol. xlv, p. 533-534.)
1917. History of the Spanish conquest of Yucatan and of the Itzas. (Harvard univ., Peabody museum papers, vol. vii.) Cambridge.
- 1917, a. A survey of ancient Peruvian art. (Trans. Connecticut acad. arts and sciences, vol. 21, p. 315-442.)
- MEANS, P. A.
1918. Las relaciones entre Centro América y Sud-América en la época prehistórica. (Sociedad geográfica de Lima, Boletín, tom. xxxiii, p. 151-170.)
- MEDINA, J. T.
1913. Fray Diego de Landa inquisidor de los Indios en Yucatán. (Proc. International congress of Americanists, 18th sess., 1912, pt. 1, p. 484-496.) London.
- MEINSHAUSEN, M.
1913. Über Sonnen- und Mondfinsternisse in der Dresdener Mayahandschrift. (Zeitschrift für Ethnologie, Bd. xlv, p. 221-227.)
- MEMBREÑO, A.
1895. Hondureñismos. Tegucigalpa.
1897. Same. Ed. 2. Tegucigalpa.
1912. Same. Ed. 3. Notablemente corr. y aun. Méjico.
- MERCER, H. C.
1896. The hill-caves of Yucatan. Philadelphia.
- MOLINA SOLIS, J. F.
1896. Historia del descubrimiento y conquista de Yucatán con una reseña de la historia antigua de esta península. Mérida.
1897. El primer obispado de la nación mejicana. Mérida.
1904. Historia de Yucatán durante la dominación Española. 3 vols. Mérida.
- MORLEY, R. K.
1918. On computations for the Maya calendar. (American anthropologist, new ser., vol. 20, p. 49-61.)
- MORLEY, S. G.
1909. The inscriptions of Naranjo, northern Guatemala. (American anthropologist, new ser., vol. 11, p. 543-562.)
1910. A group of related structures at Uxmal, Mexico. (American journal of archæology, 2d ser., vol. xiv, p. 1-18.)
- 1910, a. The correlation of Maya and Christian chronology. (American journal of archæology, 2d ser., vol. xiv, p. 193-204.)
1911. The historical value of the books of Chilán Balam. (American journal of archæology, 2d ser., vol. xv, p. 195-214.)
- 1911, a. Ancient temples and cities of the new world. Chichen Itza. (Pan-American union, bull., vol. xxxii, p. 453-468.)
- 1911, b. Ancient temples and cities of the new world. Uxmal, the city of the Xius. (Pan-American union, bull., vol. xxxii, p. 627-642.)
- 1911, c. Ancient temples and cities of the new world. Copan, the mother city of the Mayas. (Pan-American union, bull., vol. xxxii, p. 863-878.)

MORLEY, S. G.

1912. Quirigua, an American town 1,400 years old. (*Scientific American*, vol. cvii, p. 96, 97, 105.)
1913. Excavations at Quirigua, Guatemala. (*National geographic magazine*, vol. xxiv, pt. 1, p. 339-361.)
- 1913, a. Archæological research at the ruins of Chichen Itza, Yucatan. (Carnegie Inst. Wash. pub. no. 200, p. 61-91. Reports upon the present condition and future needs of the science of anthropology presented by W. H. R. Rivers, A. E. Jenks, and S. G. Morley.) Washington.
1914. Archæology. (Carnegie Inst. Wash. Year Book, no. 13, p. 233.)
1915. An introduction to the study of the Maya hieroglyphs. Washington. (U. S. bureau of American ethnology, bull. 57.)
- 1915, a. Archæology. (Carnegie Inst. Wash. Year Book, no. 14, p. 343-346.)
1916. The supplementary series in the Maya inscriptions. (Holmes anniversary volume, p. 366-396.) Washington.
- 1916, a. Archæology. (Carnegie Inst. Wash. Year Book, no. 15, p. 337-341.)
1917. The ruins of Tuloom, Yucatan. The record of a visit of the Carnegie Institution Central American expedition, 1916, to an important but little known ancient Maya city. (American museum journal, vol. xvii, p. 190-204.)
- 1917, a. The rise and fall of the Maya civilization in the light of the monuments and the native chronicles. (Proc. International congress of Americanists, 19th sess., Washington, 1915, p. 140-149. republished in Proc., Pan-American scientific congress, 2d sess., 1915-1916.) Washington.
- 1917, b. The hotun as the principal chronological unit of the old Maya empire. (Proc. International congress of Americanists, 19th sess., p. 195-201, 1915.) Washington.
- 1917, c. Archæology. (Carnegie Inst. Wash. Year Book, no. 16, p. 285-289.)
1918. The Guatemala earthquake. (American museum journal, vol. xviii, p. 200-210.)
- 1918, a. Archæology. (Carnegie Inst. Wash. Year Book, no. 17, p. 269-276.)
1919. Archæology. (Carnegie Inst. Wash. Year Book, no. 18, p. 317-321.)
- 1919, a. Review of J. T. Goodman's life and work. (American anthropologist, new ser., vol. 21, p. 441-445.)

MORRIS, E. H.

1919. The Aztec ruin. (American museum of natural history, anthropological papers, vol. xxvi, p. 1-108.)

NADAILLAC, J. F.

A. DU POUGET, MARQUIS DE.

NANSEN, F.

1916. (See Helland-Hansen, B., and F. Nansen.)

NOTICE SUR LE YUCATHAN.

1843. Notice sur le Yucathan tirée des écrivains espagnols. (Nouvelles annales des voyages, tom. 97. p. 30-52.) Paris.

ORDOÑEZ Y AGUIAR.

- ca. 1790. Historia de la creación, conforme al sistema de la gentilidad americana. Manuscript. (See N. León, 1907, p. 1-272.)

OROZCO Y BERRA, M.

1864. Geografía de las lenguas y carta etnográfica de México. Precedidas de un ensayo de clasificación de las mismas lenguas y de apuntes para las inmigraciones de las tribus. México.

PALACIO, D. G. DE.

1576. English Editions.
See Squier, 1858, p. 241, 242.
See Squier, 1860, p. 88-97
See Maudslay, 1889-1902, vol. i of text, p. 5-7.
See Gordon, 1896, p. 45-48
Spanish Editions.
See Pacheco, 1866, tom. vi, p. 37-39.
See Gaceta Oficial (of Honduras) tom. 6, no. 91, p. 1-4, Nov. 11, 1868.
See Fernández, L., 1881, tom. i, p. 1-52.
See Gordon, 1914.
French Editions.
See Ternaux Compans, 1840, p. 42-44.
See Notice sur le Yucathan, 1843, tom. xcvi, p. 38-40.
German Edition.
See Frantz, 1873, p. 1-62.

PACHECO, J. F.

1866. Relación hecha por el Licenciado D. Palacio al Rey D. Felipe II, en la que describe la provincia de Guatemala, las costumbres de los Indios y otras cosas notables. (Pacheco, J. F., and others, ed. Colección de documentos inéditos relativos al descubrimiento, conquista y colonización de las posesiones españolas en América y Oceanía, tom. vi, p. 5-40.) Madrid.

PECCORINI, A.

1909. Excursionistas Salvadoreños en Honduras. (Diario del Salvador, Agosto 9, 1909.) San Salvador.
- 1909, a. Ruinas de Copán. (Revista Centro América intelectual, p. 47-56.) San Salvador.
- 1909, b. Ligeros apuntes sobre el dialecto Camotán (Revista Centro América intelectual, p. 79-83.) San Salvador.
- 1909, c. Las ruinas de Copán (Diario del Salvador, Septiembre 10, 1909.) San Salvador.
1910. Copán. (Enciclopedia universal ilustrada Europea-Americana, tom. xv, p. 368-373.)
1918. Conferencia sobre la civilización de los Mayas y las ruinas de Copán. San Salvador.

PEÑAFIEL, A.

1885. Nombres geográficos de México. Mexico.

- PENCK, A.
1914. The shifting of the climatic belts. (Scottish geographical magazine, vol. xxx, p. 281-293.)
- PINART, A.
1883. Catalogue de livres rares et précieux, manuscrits et imprimés, principalement sur l'Amérique et sur les langues du monde entiers, composant la bibliothèque de M. Alph. L. Pinart et comprenant en totalité la bibliothèque Mexico-Guatémaliennne de M. l'Abbé Brasseur de Bourbourg. Paris.
- PINEDA, V.
1888. Historia de las sublevaciones indígenas habidas en el estado de Chiapas. Gramática de la lengua tzel-tal. Chiapas.
- PONCE, A.
1872. Relación breve y verdadera de algunas cosas de las muchas que sucedieron al Padre Fray Alonso Ponce, en las provincias de la Nueva España, siendo comisario general de aquellas partes. . . escrita por dos religiosos. (Colección de documentos inéditos para la historia de España. vols. xvii and xviii.) Madrid.
- POPENOE, W.
1919. The avocado in Guatemala. (U. S. department of agriculture, bull. 743.) Washington.
1919, a. The useful plants of Copan. (American anthropologist, new ser., vol. 21, p. 125-138.)
- POPOL VUH.
1861. Popol vuh. Le livre sacré et les mythes de l'antiquité américaine, avec les livres héroïques des Quichés . . . Texte quiché et traduction française, accompagnée de notes philologiques et d'un commentaire sur la mythologie et les migrations des peuples anciens de l'Amérique par l'Abbé Brasseur de Bourbourg. Paris.
- PRIETO, A.
1873. Historia, geografía y estadística del estado de Tamaulipas. Mexico.
1911. Tribus indígenas de Tamaulipas. Victoria.
- RADA Y DELGADO, JUAN DE DIOS DE LA.
1881. (See D. de Landa. 1881.)
1892. (See Codex Tro-Cortesianus.)
- RELACIONES DE YUCATAN.
1898-1900. Relaciones histório-geográficas de las provincias de Yucatán. 2 vols. Madrid. (Colección de documentos inéditos relativos al descubrimiento conquista y organización de las antiguas posesiones españolas de Ultramar., ser. 2, tom. 11, 13.)
- REYNOSO, FRAY D.
1897. Arte y vocabulario en lengua Mame. Mexico, 1644; reprint, Paris, 1897.
- ROSNY, L. DE.
1876. Essai sur le déchiffrement de l'écriture hiératique de l'Amérique Centrale. Paris.
- ROSNY, L. DE.
1883. Codex Cortesianus. Manuscrit hiératique des anciens indiens de l'Amérique centrale. Paris. (See Codex Peresianus.)
1888.
- SALVIN, O.
1863. Description of photographs of ruins of Copan.
- THE RUINS OF COPAN.
1864. (Illustrated London news. Jan. 16, 1864. Perhaps contains first reproductions made from photographs of the monuments, taken by Salvin before 1863.)
- SALVIN, O., and F. D. GODMAN.
1897-1904. Aves. (Biologia Centrali-Americana, zoology, 4 vols. London.)
- SAN BUENAVENTURA, FRAY G.
1684. Arte de la lengua Maya. Mexico.
- SANCHEZ DE AGUILAR, P.
1639. Informe contra idolorum cultores del Obispado de Yucatán. Madrid.
- SAPPER, K.
1897. Das nördliche Mittel-Amerika nebst einem Ausflug nach dem Hochland von Anahuac. Reisen und Studien aus den Jahren 1888-1895. Braunschweig.
1899. Über Gebirgsbau und Boden des nördlichen Mittelamerika. Gotha. (Petermann's Mitteilungen Ergänzungsband xxvii, Ergänzungsheft no. 127.)
1905. Der gegenwärtige Stand der ethnographischen Kenntniss von Mittel-Amerika. (Archiv für Anthropologie, neue folge, Bd. iii, p. 1-38.)
- SAVILLE, M. H.
1892. Explorations on the main structure of Copan, Honduras. (Abstract.) (Proc., American association for advancement of science, 41st sess., p. 271-275.) Rochester.
1892, a. Explorations at Copan, Honduras. (Scientific American, supplement, vol. xxxiv, no. 870, p. 13904.)
1894. A comparative study of the graven glyphs of Copan and Quirigua. A preliminary paper. (Journal of American folk-lore, vol. vii, p. 237-243.)
1916. The glazed ware of Central America, with special reference to a whistling jar from Honduras. (Holmes anniversary volume, p. 421-426.) Washington.
- SCHELLHAS, P.
1904. Representation of deities of the Maya manuscripts. Ed. 2. Translated by Selma Wesselhoeft and A. M. Parker. (Harvard univ., Peabody museum papers, vol. iv, no. 1, p. 1-47.)
- SCHERZER, K. RITTER VON.
1857. Travels in the free states of Central America: Nicaragua, Honduras, and San Salvador. (2 vols. London. Translation from the author's Wanderungen durch die Mittel-Amerikanischen Freistaaten.)

- SCHMIDT, J.
1883. Die Steinbildwerke von Copan und Quirigua. (English translation by A. D. Savage in 1883, published in New York.)
- SCHRAM, R.
1908. Kalendarographische und chronologische Tafeln. Leipzig.
- SEIFER, E.
1899. Die Monumente von Copan und Quirigua und die Altar-Platten von Palenque. (Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte. Verhandlungen, Jahrgang 1899, p. (670)-(738.) Published in Zeitschrift für Ethnologie, Bd. xxxi.)
1900. Einiges mehr über die Monumente von Copan und Quirigua. (Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte. Verhandlungen, Jahrgang 1900, p. (188)-(227.) Published in Zeitschrift für Ethnologie, Bd. xxxii.)
1902-1908. Gesammelte Abhandlungen zur Amerikanischen Sprach- und Alterthumskunde. 3 vols. Berlin.
1904. The Mexican picture writings of Alexander von Humboldt in the Royal library at Berlin. (U. S. bureau of American ethnology, bull. 28, p. 123-229.)
1904, a. Venus period in the picture writings of the Borgian Codex group. (U. S. bureau of American ethnology, bull. 28, p. 353-391.)
- SHORT, J. T.
1880. The North Americans of antiquity. New York.
- SIMÉON, R.
1885. Dictionnaire de la langue nahuatl ou mexicaine. Paris.
- SMITH, G. E.
1915-1916. Pre-Columbian representations of the elephant in America. (Nature, vol. 96, p. 340, 341, 425, 593-595.)
1916-1917. The origin of the pre-Columbian civilization of America. (Science, new ser., vol. xlv, p. 190-195, vol. xlv, p. 241-246.)
- SOTO-MAYOR, J. A.
1914. (See G. B. Gordon, 1914.)
- SPINDEN, H. J.
1910. Table showing the chronological sequence of the principal monuments of Copan, Honduras. (American museum of natural history.)
1912. The chronological sequence of the principal monuments of Copan (Honduras). (Proc., International congress of Americanists, 17th sess., Mexico, 1910. Reseña de la segunda sesión, p. 357-363.)
1913. A study of Maya art. (Harvard univ., Peabody museum memoirs, vol. vi.) Cambridge.
- SPINDEN, H. J.
1915. Notes on the archæology of Salvador (American anthropologist, new ser., vol. 17, p. 446-487.)
1916. Pre-Columbian representations of the elephant in America. (Nature, vol. 96, p. 592-593.) (Criticism of G. E. Smith, 1915-1916.)
1916, a. Portraiture in Central American art. (Holmes anniversary volume, p. 434-450. Washington.)
1917. Ancient civilizations of Mexico and Central America. New York. (American museum of natural history, handbook series, no. 3.)
1917, a. The invention and spread of agriculture in America. (American museum of natural history journal, vol xvii, p. 181-188.)
1917, b. The origin and distribution of agriculture in America. (Proc., International congress of Americanists, 19th sess., p. 269-276, 1915.) Washington.
1917, c. Recent progress in the study of Maya art. (Proc., International congress of Americanists, 19th sess., p. 165-177, 1915.) Washington.
- SQUIER, E. G.
1855. Notes on Central America; particularly the states of Honduras and San Salvador. New York.
1858. The states of Central America; their geography, topography, climate, population, resources, productions, etc., comprising chapters on Honduras, San Salvador, Nicaragua, Costa Rica, Guatemala, Belize, the Bay Islands, the Mosquito shore, and Honduras interoceanic railway. New York.
1860. Collection of rare and original documents and relations, concerning the discovery and conquest of America. Chiefly from the Spanish archives. No. 1. Carta dirigida al Rey de España, por el Licenciado Dr. Don Diego Garcia de Palacio. . . Año 1576. Being a description of the ancient provinces of Guazacapan, Izalco, Cuscatlan, and Chiquimula, in the audiencia of Guatemala: with an account of the languages, customs, and religion of their aboriginal inhabitants, and a description of the ruins of Copan. New York.
1865. Die Staaten von Central America, insbesondere Honduras, San Salvador, und die Moskitoküste. In deutscher Bearbeitung hrsg. von Karl André. Neue Ausg. Leipzig. (German ed. of E. G. Squier, 1858.)
1869. Tongues from tombs; or the stories that graves tell. No. 5. Central America. (Frank Leslie's illustrated newspaper, June 26, 1869, p. 236.)
1883. Ancient laborers and princes of Grand Chimú and New Granada. (Frank Leslie's Magazine, vol. xv, no. 4, p. 468-480. April 1883.)

- STAUB, W.
1919. Some data about the pre-Hispanic and the now living Huastec Indians. (Mexico antiguo, tom. i, no. 3, p. 49-65.)
- STEPHENS, J. L.
1841. Incidents of travel in Central America, Chiapas, and Yucatan. 2 vols. New York.
1843. Incidents of travel in Yucatan. 2 vols. New York.
- STOLL, O.
1884. Zur Ethnographie der Republik Guatemala. Zürich.
1888-1896. Maya-Sprachen der Pokom-Gruppe. 2 pts. Vienna, 1886, and Leipzig, 1896.
- STREBEL, H.
1884. Die Ruinen von Cempoallan im Staate Veracruz (Mexico). Mitteilungen über die Totonaken der Jetztzeit. (Naturwissenschaftlicher Verein von Hamburg-Altona, Abhandlungen, Bd. viii, Abt. 1.)
1885-1889. Alt-Mexico. (Archäologische Beiträge zur Kulturgeschichte seiner Bewohner, 2 vols.) Hamburg.
1904. Über Ornamente auf Thongefässen aus Alt-Mexico. Hamburg.
- SWANTON, J. R.
1911. (See Thomas, C. 1911.)
- TAPIA ZENTANO, C.
1767. Noricia de la lengua Huasteca. Mexico.
- TERNAUX-COMPANS.
1838. Itinéraire du voyage de la flotte du roi catholique à l'île de Yucatan dans l'Inde. Fait en l'an 1518, sous les ordres du capitaine général Juan de Grijalva, rédigé et dédié à S. A. (1), par le chapelain en chef (2) de ladite flotte. (Recueil de pièces relatives à la conquête de Mexique. Paris. p. 1-47.)
1840. Description de la province de Guatemala, envoyée au roi d'Espagne en 1576. Traduit sur le manuscrit inédit que se trouve dans la bibliothèque de M. Ternaux-Compans. (Recueil de documents et mémoires originaux sur l'histoire espagnoles dans l'Amérique, p. 5-45.) Paris.
- THOMAS, C.
1882. A study of the manuscript Troano. (U. S. department of interior, contributions to North American ethnology, vol. v.)
1888. Aids to the study of the Maya codices. (U. S. bureau of American ethnology, 6th annual report, 1884-'85, p. 253-371.)
1893. Are the Maya hieroglyphs phonetic? (American anthropologist, vol. vi, p. 241-270.)
1894. The Maya year. (U. S. bureau of American ethnology, bull. 18.) Washington.
- THOMAS, C.
1894, a. Report on the mound explorations of the Bureau of ethnology. (U. S. bureau of American ethnology, 12th annual report, 1890-'91, p. 3-742.)
1897. Day symbols of the Maya year. (U. S. bureau of American ethnology, 16th annual report, 1894-'95, p. 199-265.)
1898. Researches in the Uloa Valley, Honduras, and caverns of Copan, Honduras. . . By George Byron Gordon. . . (A review.) (American archæologist, vol. 2, p. 309-310.)
1899. Maudslay's archæological work in Central America. (American anthropologist, new ser., vol. 1, p. 552-561.)
1900. Mayan calendar systems. (U. S. bureau of American ethnology, 19th annual report, 1897-'98, pt. 2, p. 693-819.)
1904. Mayan calendar systems. II. (U. S. bureau of American ethnology, 22d annual report, 1900-'01, pt. 1, p. 197-305.)
1911. Indian languages of Mexico and Central America and their geographical distribution, by Cyrus Thomas, assisted by John R. Swanton. (U. S. bureau of American ethnology, bull. 44.) Washington.
- TOZZER, A. M.
1907. Ernst Förstemann. (American anthropologist, new ser., vol. 9, p. 153-159.)
1907, a. A comparative study of the Mayas and the Lacandones. New York.
1911. Prehistoric ruins of Tikal, Guatemala. (Harvard univ., Peabody museum memoirs, vol. v, no. 2, p. 93-135.)
1913. A preliminary study of the prehistoric ruins of Nakum, Guatemala. A report of the Peabody museum expedition. 1909-1910. (Harvard univ., Peabody museum memoirs, vol. v, no. 3, p. 137-197.)
1916. Pre-Columbian representations of the elephant in America. (Nature, vol. 96, p. 592.) (Criticism of G. E. Smith. 1915-1916.)
- TOZZER, A. M., and G. M. ALLEN.
1910. The animal figures in the Maya codices. (Harvard univ., Peabody museum papers, vol. iv, no. 3, p. 273-372.)
- VALENTINI, P. J. J.
1879. The katunes of Maya history. Translated from the German, by Stephen Salisbury, Jr. (Proc. American antiquarian society. Oct. 21, 1879, no. 74, p. 71-117.)
1880. The Landa alphabet; a Spanish fabrication. (Proc. American antiquarian society, April 28, 1880, no. 75, p. 59-91.)

- VILLAGUTIERRE SOTO-MAYOR, J. DE.
1701. Historia de la conquista de la provincia de el Itza, reducción, y progressos de la de el Lancandon, y otras naciones de Indios barbaros, de la mediación de el reyno de Guatimala, a las provincias de Yucatan, en la America septentrional. Primera parte Escriuela Don Juan de Villagutierre Soto-Mayor. Madrid.
- WALCKENAER, BARON, and others.
1836. Rapport sur le concours relatif à la géographie et aux antiquités de l'Amérique centrale, par une commission composée de MM. Le Baron Walckenaer, de Larenaudière, et Jomard, rapporteur. (Bulletin de la société de géographie, deuxième série, tom. v, p. 253-291. Same as Galindo, 1836.)
- WALSH, H. C.
1897. Copan: a city of the dead. (Harper's weekly, vol. xli, no. 2124, Sept. 4, 1897, p. 879-883.)
- WILLIAMS, M. W.
1916. Anglo-American isthmian diplomacy, 1815-1915. (Prize essays of American historical association, 1914.)
- WORK ON COPAN'S RUINS.
(New York Sun, July 1892.)
- XIMÉNEZ, F.
1857. Las historias del origen de los Indios de esta provincia de Guatemala, traducidas de la lengua Quiché al Castellano. . . por el R. P. Francisco Ximénez. . . publicado por la primera vez, y aumentado con una introducción y anotaciones por el Dr. C. Scherzer. Viena.

INDEX

- Abandonment, climatic change suggested as cause of, 448
 Cook's hypothesis, 452
 Earthquake hypothesis rejected, 443
 Huntington's hypothesis, 448
 Latest cities to be affected, 444
 Of cities, progressive, 434
 Of Copan, period of, 23
 Of most Old Empire cities (prior to Cycle 10), 430
 Of region, gradual only, 442
- Achi, defined, 611
- Acropolis, growth by accretion, 7, 11
 Date of, 9
 Height of, 425
 Rapidly of completion, 426
 Vertical cross-section, 211
 View from, 11
- Adams, Percy, 27
- Addition and multiplication, different positions of numeral modifier in each, 312
- Agouti, 4
- Agricultural collapse most probable cause of end of Old Empire civilization, 462
- Agriculture, Cook on, 454
 Debilitation of soil from successive burnings, 454
 Development in archaic period, 410
 Factor in development of civilization, 414
 Maya method of, 453
- Aguacate, 3
- Aguas Calientes, 333, 433, 438, 441, 459
 Stela 1, 135, 572, 585, 589
- Aguilar, García de, 544
- Aguilar, Gerónimo de, 476
- Aguilar, Sanchez de, quoted, 42
- Ahau-sign, as infix to Imix, 230
 Inverted, used as glyph for kin or day, 589
 Occurs 104 times out of 158 day-signs at Copan, 589
 Unusual element in, 380.
- Ahpulha, meaning of word, 509.
 Napot Xiu (see Xiu, Napot)
- Ah-tz'un, meaning of, 479, 509
- Ahuitzotl, death of, 37
- Ah-ziyah, meaning of, 479
- Akbal, not found as day-sign at Copan, 589
 One of year-bearers, in New Empire and Codices, 516, 518
- Alford, 8
- Allen, 8
- Alphabet, general for all Mayance tongues, 611
- Altar de Sacrificios, 391, 433, 436, 441, 459
 Abandonment of, 456
 Forms one site with El Pabellón, 571
 Stela 4, 571, 583
 Stela 5, 583
 Stela 7, 571, 584
- Altar types, chronological sequence of, 395
- Altars, associated, at times with hotun-markers, 214
 Drum-shaped, 110
 Of Early Period, description of, 395
 Subordinate to stelæ, 127
 Truncated cone, 377
- Amalín, Pedro, 17
- Analtehes, Maya codices, 42, 43
- Ancona, History of Yucatan, 526
- Annals of Quauhtitlan, 42
- Anniversary of 6 Caban 10 Mol, 336
- Anona, 3
- Ant-eater, 4
- Apay language, 605, 606
- Archaic culture, 422
 Earlier origin of, 422
 Vaster extension of, 422
- Archaic horizon, in Middle America, 409
- Archaic stelæ, characteristics of altars of, 62
 Anthropomorphic figures, 422
 Classification of, 125
 Sculptures under Altars X and Y, 208
- Archaisms, at Tikal, 54, 76
 At Uaxactun, on Leyden Plate, on Tuxtla Statuette, 76
- Architectural achievement, zenith of, 315
- Arnold, quoted, 224
- Artistic considerations, coercive influence of, 170
 In glyph cutting, 265
- Astronomical elements (in Stelæ 10 and 12), 133, 134, 143
 Data, probably recorded here, 134
- Astronomical phenomena, 33, 465
- Athens of the New World, 431
- Atlatl, Nahuatl weapon, 574
- Aubin Codex (1576), 38, 41
- Autochthonous origin of civilization doubtful, 406
- Aztec calendar, 36
 Codices, 36, et seq
 Glyphs, decipherment of, 41
 Place names, 36
 Time-count grafted on Maya count, 479, 514
- Babylonian lunar calendar, parallel with Maya Supplementary series, 554
- Bacalar or Bakhalal, 457, 502
 Brinton on etymology, 457
- Balam Quiché, present fixed Quiché history begins with, about 12th century, 614
 United Chiquimula to Utatlán, 605
- Ball Court a purely Nahuatl institution, 514
 Only two in Yucatan, 514
- Bancroft, H. H., references to Copan, 21
- Baraona, Sancho de, 16
- Baskets, 4
- Bat glyph, 45
- Beans, 3
- Benque Viejo, 433, 438, 441, 444, 458
 Abandonment of, 457
 Stela 1, 278, 528, 572, 586
- Berendt, Chol word-list, 610
 Copies Stephens's erroneous Chortí word-list, 607
- Beverages, 3
- Bezerra, Bartolomé, 16
- Biologia Centrali-Americana, publication of, 22
- Birds, 5
- Bisextile shift in Maya New Year, 486
- Bogran, 24
- Bonilla, Policarpo, on Galindo, 603
- Borbonicus Codex, 559
- Boturini Codex, 41

- Bowditch, Charles P., bibliography, 32
 Correlation of chronology, 529
 Error noted, 342
 Lords of the Night, 559
 Method of notation, superseded those of Goodman, Förstermann, and Seler, 49
 Numeration, Calendar Systems, and Astronomical Knowledge of the Mayas, 32
 Periodicity of monuments, 565
 Quoted, 139, 231
 Work of, 24
- Brasseur de Bourbourg, on Chortí language, and Chiquimula kingdom, 607
 Chronology, 525
 Visits to Copan, 21
- Brinton, D. G., bibliography, 32
 Contributions to Middle American archæology, 32
 Doubling of katuns, 492
 Error of, corrected, 477
 "Father of Maya history," 32
 Katun-wheel in Cogolludo, 481
 Prevision, 35
 Quoted, 33, 35, 404
- Caban and Ik, at Quirigua second in importance only to Ahau, 516
 Only day-signs in variable element in Initial Series, 516
 Probably Old Empire year-bearers, 516, 518
- Caban series of year-bearers, in Old Empire, 516, 518
- Cabildo, museum in, at Copan, 106, 117
- Cacao, 3
- Cachapa, 147
- Cache under Stela 1, 424
 Under Stela 3, 155
 Under Stela 7, 105
 Under Stela C, 346
 Under Stela I, 177
 Under Stela M, 278
- Caches in foundation chambers at other sites, 278
- Cakchiquel Annals, 461
- Calabash, 3
- Calculations of Maya dates, means for, 75
- Calendar and chronology, probable swift development of, 407
- Calendar-Round date, 294
 Dating, uncertainty of, 236
- Camargo, Diego, 545
- Camotán, founded by Chortí emigrants from Copan, 603
- Cancun, 433, 438, 441, 459, 520
 Altar 2, 572, 585
 Stela 2, 156, 572, 585, 589
- Capital at Copan shifted from Group 9 to Main Structure in Middle Period, 429
- Cárdenas, Diego de, on number of natives in Choltí region, 608
- Cardona, Antonio de, 546
- Carpenter, A. W., 27
- Carrillo y Ancona, Bishop, 526
- Carving, excellence of, on Stela P, 116
- Catherwood, drawings, 20
 Accuracy of, 226, 352
- Cauac-sign, 108
- Cauac, winged, as tun-sign, 153, 163, 380, 566
 At Chinikihá, 582
 Used as tun-sign in New Empire, 393
- Cayo, El, 220
- Ceh, forms for, 66, 89
- Center of population shifting, 129
- Center, Mr., visit to Copan, 21
- Ceramic finds in foundation chambers, 278
- Ceremonial importance of last day of time periods, 397
- Chachalaca, 5
- Chac Mool, 520
- Chamelicon Valley, 6, 431
- Chaves, Hernando de 17, 544, et seq.
- Chay, obsidian lances, 545
- Chel New Year, according to Goodman, 491, 498
- Chels move to Tikoch, 487
- Chen, forms for, 66
- Chiapanec, linguistic island, of Nicaraguan origin, 615
- Chichen Itza, 34, 391, 433, 441, 458, 567
 Discovery of, 498
 Earliest hotun-marker in New Empire, 573
 Early occupation, 435
 High Priest's Grave, 511, 512, 580
 Occupations of, 502
 Structure near casa principal, 512
 Temple of Initial Series, 393, 512, 572, 586
 Temple of two lintels, 358, 512, 573, 580
 Temple at Ula, 512
- Chichen Itza Initial Series lintel, 520, 527, 531
 Lintel, Old Empire, 458
 Re-used during Nahua period, 511
 Same date on Old Empire lintel as on Stela 2 at Quen Santo, 459
- Chichimec, History, 42
- Chicomucelteca, 405
- Chicozapote, 220, 441
- Chilan Balam books, 578
- Chile, 3
- Chinikihá, 44
 Altar date, 582
- Chiquimula, 542
- Chiquimula de la Sierra, conquest of, 16
- Choltí, linguistic affiliations, 610, 611
 And Chortí one tongue, 605, 610
 Meaning of word, 610
 Territory, extent, 609, 610
 Vocabulary, compared with Maya and Quiché-Pokom, 611
- Chortí language, 595
 Not one of Pokom language group, 605
 Vocabulary, earliest known, 606
 Word-list in Galindo manuscript, 601
- Christianity, official introduction of, in Yucatan, 489
- Chronological sequence of altar types, 395
 Of monumental types, 394, 395
- Chronological systems, two in use at time of conquest, 512
- Chronology, Maya, correlation with Christian dates, 465
- Chronology of Copan, Spinden on, 53
- Chumayel manuscript, 473, 578
 Extract, translated, 479
 Itza records in, 474
 Quoted, 43, 458, 474, 485, 576
- Chunvis, 441
- Civilization, Maya, autochthonous origin of, doubtful, 406
 Extension of, 403
 Influence on Zapotec, Nahua, etc., 404
 Origin of, 402
 Transfer of after Old Empire to Yucatan, 614
- Climate, 2
- Climatic change suggested as cause of abandonment, 448
- Climatic conditions, effect on erection of stelæ, according to Huntington, 452
 Hilderbrandsson on, 449
 Penck on, 450
- Climatic chart, Huntington quoted in explanation, 450

- Cloisonné, Mexican, wide distribution of, 34
- Cocom, 445
 Driven to Tibulon and Sotuta, 487
 New Year, according to Goodman, 491, 498
- Cocom, Juan, one of Landa's informants, 29
- Codices, month coefficients in, 513 (see under Dresden, Peresianus, and Tro-Cortesianus)
- Coefficients, unusual forms of:
 4, coefficient, unusual form of, 162
 10, fleshless lower jaw used as zero in three places at Copan, 137
 11, glyph for, 166
 15, bar with death's head for, 166
 15, composite numeral, possible reason for, 169
- Cogolludo, History of Yucatan, 472
 Katun wheel in, 472
 On erection of stelæ, 577
 Quoted, 43, 480, 481
- Cojolito, 5
- Colonies of Copan, 431
 Quirigua, 428
- Colonization of Yucatan, 459
 Period of New Empire, 458
- Colors on monuments, 132 (see also Red paint)
- Comet, over Mexico in 1489, in Codices, 40
- Conquest of Copan, told by Fuentes y Guzmán, 17
 Told by Juarros, 17
- Constellation bands, 152
- Conventionalization in Maya glyphs, 232, 259
- Cook's studies in agricultural methods, quoted, 452, 455
- Copal, incense, 4, 365
- Copan: Colonies of, 431 (also see Los Higos, Paraiso, Rio Amarillo, Santa Rita, Quirigua)
 Important dates at, 516, 579 (see also 6 Caban to Mol)
 Location, 1
 Name, different etymologies suggested, 15
 Outlying groups, 13
 Preeminence of, 431
 Site clearing, 58
 Site of, 6
 Supplementary Series at, 551
 Valley, intensive occupation of, 14, 25
- Copan, Cabildo, museum in, 106, 117
- Copan Cael, 17, 544
- Copan, divisions of site:
 Court of Hieroglyphic Stairway, 9
 Eastern Court, 10
 Mentioned by Galindo, 596
 Great Plaza, 129
 Date, 12, 177, 220, 425
 Date determined by Stela I, 427
 Hiatus in monuments during its construction, 130
 Removals from Group 9 to, 419
 Group 9:
 Favorable character of location, 417
 First center of intensive occupation, 122
 Most thoroughly excavated group at Copan, 417
 Mound of Stela 7, earliest center of intensive occupation at, 106
 Oldest settlement in valley, 417
 Removals from, to Great Plaza, 419
 Sketch map of, 124
 Group 13, plan of, 144
 Main Structure, chief center from Middle Period, 129
 Earliest monument at, 424
 General description, 7, 8
 Most important center after 9.11.0.0.0, 163
 Mound 9 probably oldest building left at Main Structure, 425
- Copan, division of site—*Continued*.
 Middle Court, 12
 Western Court, date of, 115
- Copan Early Period (see also Earliest, etc.):
 Altars, description of, 127
 Inscriptions, 53
 Monuments, provenance and periodicity, 121
 None in situ, 122
 Re-used, list of, 418
 Stelæ and altars, tentative correlation of, 128
 Stelæ, list of dates, 419, 420
- Copan, Middle Period:
 Expansion in, 437
 History summarized, 210
 Inscriptions of, 129
 Last monument of, 427
 Stelæ, classified, 212
 All date from hotun-endings, 214
 All show Initial Series, 212
- Copan, Hieroglyphic Stairway, 51, 243, 244, 257, 263
 Classification of dates, 266
 Discussion, 237
 Hiatus in monuments during its construction, 130
 Landslide at, 268
 Summary of chronology, 272
- Copan monuments:
 Altar of Stela 1, 598
 Discussion, 174
 Altar A', discussion, 68
 Its stela probably lost, 128
 Altars B' and C', discussion, 291
 Altar D', discussion, 293
 Altar F', discussion, 372
 Now in Peabody Museum, 373
 Altar G₁, discussion, 366
 Altar G₂, discussion, 365
 Altar G₃, discussion, 325
 Altar G', discussion, 374
 Altar H', 566, 597
 Altars H' and I' removed at early date, 194
 Discussion, 186
 Inscription continued on Altar I', 189
 Altar I', 597
 Discussion, 189 (see Altar H')
 Altar J', discussion, 56
 Altar K, discussion, 185
 Altar K', discussion, 56
 Altar L, discussion, 289
 Altar L', discussion, 57
 Altar M', discussion, 58
 Altar N', discussion, 375
 Altar O', discussion, 370
 Altar P', discussion, 63
 Altar Q, 597.
 Discussion, 326
 Altar Q', discussion, 61
 Altar R, discussion, 298
 Altar S, closely connected with Stelæ A and B, 230
 Discussion, 230
 Suggested translation for, 230
 Altar T, 344
 Discussion, 334
 Altar T', discussion, 375
 Altar U, 516
 Discussion, 299
 Petrographic description, 463
 Altar U', discussion, 376
 Altar V, discussion, 296
 Altar W, discussion, 364

Copan monuments—*Continued.*

- Altar W', discussion, 330
- Altar X, archaic sculpture beneath, 208
 - Discussion, 63
- Altars X and Y, and Stelæ 16 and 17, closely related, 65, 91
- Altars X, Y, and A', similarity of, 128
- Altar Y, archaic sculpture beneath, 208, 421 (see Altar X)
 - Discussion, 66
- Altar Z, discussion, 324
- East Altar of Stela 5, 164, 168, 565
 - Discussion, 163
- Fragments V', discussion, 117
- Fragment E', discussion, 338
- Fragment S', discussion, 120
- Fragment X', discussion, 368
- Fragment Y', discussion, 209
- Fragment Z', discussion, 378
- Hieroglyphic Stairway of Mound 26:
 - Date 1, 241; Date 2, 243; Date 3, 244; Date 4, 245;
 - Date 5, 245; Date 6, 247; Date 7, 247;
 - Date 8, 247; Date 9, 247; Date 10, 249;
 - Date 11, 251; Date 12, 252; Date 13, 252;
 - Date 14, 253; Date 15, 254; Date 16, 255;
 - Date 17, 255; Date 18, 256; Date 19, 256;
 - Date 20, 256; Date 21, 256; Date 22, 257;
 - Date 23, 257; Date 24, 258; Date 25, 261;
 - Date 26, 262; Date 27, 264; Date 28, 264;
 - Date 23, probably historical event, 258
 - Reappears at Quirigua 258
 - Date 24, probably earliest of late group, 269
 - Probable position of, at top of stairway, 269
- Hier. Steps, south side Mound 2, discussion, 23
- Stela 1, 565
 - Altar of, 174
 - Discussion, 161
- Stela 2, 559
 - Discussion, 136
 - Resemblances to Stela 12, 140
- Stela 3, 155, 559
 - Discussion, 155
 - Petrographic description, 463
- Stela 4, discussion, 355
- Stela 5, discussion, 204
 - East Altar of, 163
 - Relation of West Altar of, to Stela 1, 181
 - West Altar of, 171
- Stela 6, 566
 - Discussion, 183
- Stela 7, 79, 567
 - Cross-section of mound of, 104
 - Excavation of mound of, 104
 - General discussion, 102
 - Mound of, first religious center at Copan, 418
 - Plan of mound of, 103
- Stela 8, discussion, 340
- Stela 9, 568
 - Comparison with Stela 15, 94
 - Discussion, 93
- Stela 10, discussion, 141
- Stela 11, discussion, 369
- Stela 12, 559
 - Discussion, 132
 - Resemblances to Stela 2, 140
- Stela 13, 559
 - Discussion, 152

Copan Monuments—*Continued.*

- Stela 15 566, 568
 - Comparison with Stela 9, 94
 - Discussion 86
- Stela 16, 567
 - Discussion, 84
 - Stylistic study, 92
- Stela 17, discussion, 89
 - Stelæ 16 and 17 and Altars X and Y closely related, 65, 91
- Stela 18, discussion, 96
 - Shows first human figure in front view, 60
- Stela 19, altars with, 145
 - Discussion, 143
- Stela 20, 72, 74, 568
 - Discussion, 72
 - Oldest monument at Copan, 60, 77
- Stela 21, discussion, 95
- Stela 22, discussion, 68
- Stela 23, discussion, 146
- Stela 24, 80, 567, 568
 - Discussion, 78
- Stela 25, discussion, 69
- Stela A, 47, 566, 598
 - Closely connected with Stela B and Altar S, 230
 - Discussion, 221
- Stela B, 598
 - Closely connected with Stela A and Altar S, 230
 - Discussion, 223
- Stela C, discussion, 345
- Stela D, 27, 598
 - Discussion, 230
 - Petrographic description, 463
- Stela E, discussion, 101
 - Probably brought from Group 9, 107
 - Stelæ E and I and their altars, analogies, 113
- Stela F, 566, 598
 - Discussion, 353
- Stela H, 598
 - Discussion, 351
- Stela I, 565
 - Discussion, 177
 - Relationship to West Altar of Stela 5, 181
- Stela J, 244
 - Discussion, 194
- Stela M, 559, 560
 - Cruciform chamber under, 278
 - Discussion, 277
- Stela N, 559, 560, 561, 597
 - Discussion, 279, 289
- Stela P, 566, 597
 - Discussion, 114
 - Excellence of carving, 116
- Temple 11, 597
 - Discussion, 307
- Temple 18, discussion, 371
- Temple 21a, discussion, 318
 - Possibly Temple of Venus, 319
- Temple 22, 10
 - Beauty of, 317
 - Discussion, 316
 - Head from, at Peabody Museum, 317
- Temple 26, discussion, 274
- Copan, similar monuments to, at adjacent sites:
 - Los Higos, Stela 1, 384 (see Los Higos)
 - Rio Amarillo, Altars 1 and 2, 382 (see Rio Amarillo)
- Copan, peccary skull from Tomb 1, 379
 - Discussion, 379
 - Now in Peabody Museum, 379

- Copan, Reviewing-stand in Western Court, 579
 Discussion, 321
 Copan, Shrine R', discussion, 377
 Copan, Summary of monuments relating to 6 Caban
 10 Mol, 343 (see also 579)
 Summary of Stelæ 4, C, F, and H, 358
 Copper bells, 34
 Córdoba, Hernando de, 490
 Cornette, visit to Copan, 21
 Cornice, hieroglyphic, cases of, 276
 At Quirigua, 387
 Correlation of chronologies, probably assured within 49-
 day range, 505
 Basic evidence for, 466
 Historical bases for, 475
 Proposition by Morley, 467
 Sources for, 467
 Correlation schools, American, 529, et seq.
 French, 525
 German, 526
 Guatemalan, 525
 Cortés, Hernando, 549
 In Yucatan, 490
 Cotton, 3
 Criteria of archaism, 77
 Crops, 3
 Cruciform underground chambers, 177
 Under Mound 9, 121
 Under Stela 1, 161, 163
 Under Stela 3, 155
 Under Stela 7, 105
 Under Stela I, 177
 Under Stela M, 278
 Under Stela C, 346
 Other similar locations, 105
 Cultural connection with Old World unsupported, 224
 Cultural gap greater in Guatemalan history than in Yucatan, 614
 Culture intrusions in other localities, 34
 Culture levels, 8
 Curassow, 5
 Current time-system grafted on elapsed time-system, 479,
 514
 Curve of civilization at Copan, 432
 Cutilca Cave, 600
 Cycle renewal in codices, 41
 Cycle 10, record of, 198
 No contemporaneous monument found recording, 438
 Cycle 11 dates, 250
 Cycle-sign, 83
 Daly, César, visit to Copan, 21
 Dardón, Juan Pérez, 16
 Date, anachronism of 13 Ahau 8 Xul developed by the
 Oxkutzcab chronicle, 510
 Most important in Great Period, 429
 Date glyphs, percentage of, in inscriptions, 399
 Date, latest in southwestern Maya field, 438
 Date (see also Important dates)
 Date of dedication of monuments, necessarily selected in
 advance, 398
 Date, probable position of 13 Ahau 8 Kankin in Long
 Count, 510, 518
 Date, 6 Caban 10 Mol, a historical date, most important
 at Copan, 297
 Anniversary of, 336
 Date, starting-point of Maya chronological system (4 Ahau
 8 Cumhu) occurrence of, on monuments, 150
 Dates, decimal notation for Christian, 477
 Important group of, 344
 Dates of Copan monuments, table, 587, et seq.
 Calculation of, 75
 Contemporaneous on monuments, 26, 27
 Decipherment of, 46
 In lower half of Hieroglyphic Stairway, probably
 relate to historical events of Early Period, 268
 Latest on one monument, is usually the contemporane-
 ous, 227
 Probable percentage of error in decipherment of, 415
 Dates, "prophetic," 27, 197, 198, 333, 342
 Dating system, accuracy of, 27
 Day, basic unit of time count, 465
 Count (tonalamatl), inviolability of, 522
 Positions shifted after 1200 A. D., 478
 Day-sign, 83
 Day-signs at Copan, list of all, 589, et seq.
 Death god, 558
 Death's-head characteristics in numerals, 172
 Glyph, 81
 Decipherment, of Aztec glyphs, 41
 Maya date, 46
 Maya hieroglyphic writing, 28
 Means for, 75
 Probable percentage of error in, 415
 Decipherment, Maudslay's contribution, 31
 Phonetic school, 30
 Decorated element, to avoid distortion, 203
 Deer, 4
 Deer hunts in Codex Tro-Cortesianus, 4
 Deities, presiding over periods, 559
 Delgado, Joseph, among Choles, 609
 Destruction of monuments and buildings due to tropical
 vegetation, 442
 Díaz, Padre Juan, with Grijalva, 519
 Different plaza levels in Acropolis at Copan, 425
 Diocese of Yucatan, 29
 Dolores, location of, 609
 Doves, 5
 Drawings, scale of, 524
 Difficulties in, 52
 Dresden Codex, 589
 Bowditch on contemporaneous date of, 519
 Förstemann on contemporaneous date of, 519
 List of lunar and solar eclipses, 556, 557
 Lunar and eclipse calculations, 555, 557, 558, 561, 563
 Meinshausen on, 556
 Moon-glyph in, 554
 Serpent numbers, 281
 Venus-solar periods in, 35, 150, 182, 527
 Year-bearers, 516, 517
 Dress, 5
 Drum-shaped altars, 110
 Earliest center of intensive occupation, 106
 At group 9, 122
 Earliest center of population, 123, 125
 Earliest certain contemporaneous texts in Old Empire, 411
 Earliest deciphered date at Copan, 78
 Earliest entry in Maya chronicles (9.0.0.0.0), 501
 Earliest Great Period cities, 438
 Earliest human form in front view, 97
 Earliest monuments at Copan, 55
 Stela 20, 77
 At Main Structure, 424
 Earliest stela at Copan, 60
 Early and late groups of dates on Hieroglyphic Stairway,
 stylistic difference between, 270
 Early Period at Copan (see Copan, Early Period)

- Early Period, monuments, list of re-used, 418
 None in situ, 122
 Provenance and periodicity, 121
- Early Period stelæ, altars, description of, 127
 Inscriptions, 53
 List of dates, 419, 420
 Stelæ and altars, tentative correlation of, 128
- Early visits to Copan, Stephens, 2
- Earthquake hypothesis as cause of abandonment, rejected, 443
- Earthquakes, in Aztec Codices, 39
- Eclipse phenomena in Supplementary Series, 401
- Eclipses, 35, 465
 In Aztec Codices, 39
- Egyptian cultural connection unsupported, 224
- Eisen, G., on Chortí language and on Copan natives, 607
- El Cayo, 220, 391, 433, 438, 441
 Stela 1, 572
- El Chicozapote, 220, 441
- El Encanto, 441
- El Mecco, 520
- El Pabellón, 391, 433, 436, 441
 Four monuments from, deciphered, 571
 Site same as Altar de Sacrificios, 571
 Stela 1, 571, 583
- Elapsed time concept, 282
- Elapsed time in Maya counting, 48, 64
- "Elephant-head" decoration, 28
- "Elephant-trunk" element, 224
- Elevation of Copan, 1
- Encinas, Fernando, 546
- Ending-sign (see Hotun and Lahuntun)
- Engraving of records practiced long before foundation of Copan, 416
- Environment at Copan, 1
- Errors in inscriptions, 280
 In month-signs, very unusual, 332
- Espíritu Santo Bay, 520
- Esquipulas, surrender, 17
- Excavations, objects found, 25
- Exodus from Old Empire region, two-fold direction of, 457
- Expansion at end of Early Period, 419
 In Middle Period, 437
 Of civilization under Old Empire, 434, 435
- Extinction of Old Empire civilization, causes suggested, 442
- Eye pierced by arrow in katun-wheel figure, 483
- Eznab, resemblance of, to death's head, 81
- Fall of Old Empire 442
- Famine in 1533-34, Landa and Juan Xiu on, 509
- Fauna, 4
- Feather head-dresses, 5
 Tassel decoration, 360
- Feathers of turkey, macaw, quetzal, toucan, and parrot, 5
- Ferraz, *Lenguas Indígenas de Centro America*, 610
- Fibers, 4
- Figures on two faces, monuments with, uncommon, 279
- Fire-sticks, distribution in ancient America, 41
- Flora at Copan, 1
- Flores, 433, 438, 441, 444, 458
 Abandonment of, 457
 Stela 1, 458, 528, 572, 586
 Stela 2, 458, 528, 572, 586
- Florida, La, 422
- Food staples, 3
- Food-supply, national crisis in Great Period, 456
 Probable effect on religious ceremonies of time, 456
- Forearms of human figures, position of, 141
- Forestation, 1
- Forests, present not primeval, 455
 Botanical and zoological evidence for this, 455
 Cook, corroborated by Whitford, 456
- Förstemann, Ernst, 31, 78
 Life and bibliography, 30
 On correlation of chronology, 199
 On moon-glyph in Dresden Codex, 554
 Quoted, 527
 Work on decipherment, 30
- Fragments, inscribed, importance of preserving, 120
- Frog, relation to Uo, uinal, and moon-glyphs, 232
- Fruits, 3
- Fuensalida, Padre, visit to Tayasal, 472
- Fuente Albores, Juan Jossef de la, Chol vocabulary from Tilá, 610
- Fuentes y Guzmán, chapters on Copan, 543
 Digested copy by Mariano Padilla, 543
 Manuscript, 543
 Quoted, 15
- Full-figure glyphs, 231
- Function of monuments, probable, 396
- Galindo, Juan, a British subject born in Ireland, 603
 Discovery of his report on Copan, 593
 Drawings, 19
 Excavations and finds, 11
 Letters, 19
 Manuscript, 18
 Our treatment of the Indian, 594
 Quarries, 6
 Quoted, 132, 187
- Gallardo, Pablo, 548
- Gallatin, prints Stephens's erroneous Chortí word-list, 607
- Gann, copies of wall paintings, at Tuluuum, 519
- García de Medina, Probanza, 488
- García Pelaez, cites Isagoge on the Payaqui, 607
- Garnica, Diego Martínez de, 549
- Garrido, Bartolomé, 545
- Gates, William, collection, 18, 593, 594
 Maya post-conquest manuscripts in, 475
 On Maya passage, 530
 Quoted, 477, 482, 483
 Translation and notes, *Oxkutzcab Chronicle* (p. 66), 508
 Translation by, 479, 485
 Translation of Fuentes y Guzmán, 543
- Geology of Copan, 1, 463
- Glyph, defined, 50
 Conventionalization, 259
 For lahuntun and katun, 201
 Value, 337
- Glyph-blocks, defined, 50
 Delineation, characteristics of earliest style, 393
 Earliest style most extensive at Tikal, 393
 Measurements of, as criterion, 117
- Glyphs, full-figure, 231
 Form variance in, 64
 Inversion of, 322
 Right to left reading of, 313
 Unusual order of, 156
- God A, and number 10, 558
- God D, and number 4, 558
- God E and numbers 1 or 8, 558
- God K, and number 7, 558
- God N and number 5, 558
- Godman and Salvin, work on fauna and flora, 4
- Goldman, E. A., revision of fauna nomenclature, 4
- Goodman, J. T., work on decipherment, 30
 Correlation of chronology, quoted, 530
 Contradictions involved in his correlation, 531
 Date for Palenque, 530

- Goodman, J. T.—*Continued*.
 Error corrected, 242
 Mistranslates Maya passage, 530
 On Itza, Chel, and Cocom New Year, 491, 498, 523
 On lahuntun-glyph, quoted, 566
 On Old Empire year-bearers, 516
 Quoted, 283
 Review of his work, 31
- Gordon, George B., 2
 Date, reading of, for Altar X, 65
 On inscriptions of Hieroglyphic Stairway, 241, et seq.
 On monument nomenclature, 537
 Quoted, 271
- Gorgas, W. C., on malaria, 446
- Gourd, 4
- Great Cycle, etc., 349, 351
 Length of, 281
- Great Cycle glyphs, 376
 Occurrences of, 281
- Great Cycle, previous, 250
- Great Cycle 19, 283
- Great-Great Cycle glyph, 346, 347
- Great-Great Cycle 11, 283
- Great-Great-Great Cycle 1, 283
- Great-Great-Great-Great Cycle 1, 283
- Great Period, earliest cities of, 438
 Inscriptions of, 219 (see also Copan, Great Period)
- Grijalva, Juan de, 490
 Expedition, 519
- Guacas, hidden treasures, 549
- Guatemala Highlands, settlement of by migration from the north, 459
- Guava, 3
- Guelva, Juan Sánchez de, 544
- Guthe, Carl, 551, 558
 On Supplementary Series, 563
- Hacienda Grande, 6, 14
 Plan of, 144
- Hacienda Mirafior, 422
 Archaic figures found at, 422
- Halach vinic, Maya term for ruler, 487
- Hardcastle, Mr., visit to Copan, 21
- Head facing to right on Stela 2, reason for, 140
- Head glyph, unusual position of, 167
- Held, John, jr., 28
- Hewett, E. L., 27
- Hiatus in monumental sequence, possible explanation therefor, 130
- Hieroglyphic Stairway, date, 24
 Its beauty of composition, 261 (see also Copan, Hieroglyphic Stairway)
- Hieroglyphic steps at other localities, 220
- Hieroglyphic writing, study of, 232
- Hilderbrandsson on climatic conditions, 449
- Historical bases for a chronological correlation, 475
 Data in inscriptions, 36
 In Aztec Codices, 36-40
- History in Maya manuscripts, 42, et seq.
- History of Copan, Early Period, Old Empire, 415
 Great Period, 429
 Middle Period, 423
- Holactun, Temple of Initial Series, 250, 358, 391, 393, 411, 500, 512, 580
- Holmes, W. H., 27
 Study of tools, 5
- Hondureñismos, cited, 607
- Honradez, La (see La Honradez)
- Hotun, defined, 74
 Chronological unit in Old Empire for 250 years, 127
- Hotun-ending, earliest known, 398
 Earlier of two, invariably contemporaneous date, 227
 Later of two, "Future time," 227
 Later of two, invariably of unusual importance, 228
 Single, invariably contemporaneous date, 227
- Hotun-Glyph, 565
 First identified by writer, 566
 Widespread use of, 566
- Hotun, lahuntun, or katun endings, priority among, 421
- Hotun-markers, at Quirigua, 214
 At Tikal and Nakum possibly painted, 437
 At times associated Altars used as, 214
 Custom at different cities, detailed statement, 568
 Disuse of in later period, 364, 388
 Erection of, 90, 111
 In Early Period, 126
 Missing, probable reason for, 216
 Possibly originated at Copan, 420
 Tabulated list of, 581
 Use continued through Middle Period, 213
- Hotun numeral coefficients, 75
- Hotun-sign, unique variant of, 162
- Howe, 573
- Huasteca, 402, et seq.
 A Maya linguistic island, 403
 No evidence of hieroglyphic writing among, 404
 Separation of, before development of civilization, 405
- Huitzilipochtli, dedication of temple, in Aztec Codices, 39
- Human figure, range of period, 395
 Representation, 60
- Hunnac Ceel, victory over Itza, 574
- Hunter, Annie, drawings, 22
 Drawings by, corrected, 109, 115, 139, 142, 162, 302
- Huntington, Ellsworth, theory of climatic changes and rainfalls, 448
- Hypothesis, chief weakness of, 452
- Ichmul, stela 1, 580
- Ik and Caban, only day-signs, in variable element in Initial Series introducing-glyphs, 516
 At Quirigua second in importance only to Ahau, 516
 Old Empire year-bearers, 516, 518
- Imix not found as day-sign at Copan, 589
 As part of month-sign Mac, 589
- Important dates, other than Period Endings, 579, 582
 9.0.0.0.0. recorded at several places, including Copan, Palenque, Books of Chilán Balam, 582 (see notes to App. VIII, 582, et seq.)
 9.14.13.4.17 most important date at Quirigua, 258, 273, 274
 Possibly date of foundation of Quirigua, 272
 9.15.0.0.0 at various places, 584
 10.0.0.0.0, not found as contemporaneous date, 586
 9.16.12.5.17 most important date of Great Period at Copan, possible significance of, 429
 Its anniversary commemorated, 430
 6 Caban 10 Mol, at Copan, 516, 579
 12 Caban 5 Kayab at Quirigua, 516, 579
 6 Cimi 4 Tzec at Quirigua, 579
 4 Eb 10 Yax, 9 Manik O Kayab, 3 Cauac 2 Pop at Naranjo, 579
 2 Ik 10 Pax at Piedras Negras, 579
 6 Ix 12 Yaxkin at Yaxchilan, 579
 7 Men 18 Kankin at Piedras Negras, 579
- Incense, 4
- Inclusions in rock masses, 463
 In Altar G, 367
 In Altar U, 300
 Petrographic description of, 463

Inclusions in rock masses 463—*Continued.*

- In Stela 2, 140
- In Stela 3, 157
 - Petrographic description of, 463
- In Stela D, 233
 - Petrographic description of, 463
- Indians, Galindo on our treatment of, 594
- Initial Series, 34, 466
 - In stelæ, 29 known at Copan, 111
 - Name given by Maudslay, 31
 - System perfected at time of Tuxtla Statuette, 411
 - 59 out of 178 known are at Copan, 391
- Initial Series found on all Early Period Stelæ, 126
 - At Copan nearly always record katun, lahuntun, or hotun-endings, 70, 74
 - Caban and Ik in introducing glyphs of, 516
 - Contemporary date on early stelæ, 399
 - First discovery of in Yucatan, 500
 - Found on all Middle Period Stelæ, 212
 - Latest at chief sites, 392
 - Latest known, 411
 - List of known, at all sites, 391
 - Method not used in latter part of Great Period at Copan, 307, 388
 - None at Seibal, or Nakum, 393
 - Only 3 known in New Empire, 393
 - Stelæ with two, list of, 401
 - Unique introducing glyph, 144
- Initial Series, terminal date, suppression of, 138, et seq.
- Inscribed lintels at other localities, 220
- Inscriptions, Goodman's work on, 31
 - At Copan, constitute 40 per cent of all known, 391
 - Of Early Period, 53
 - Of Great Period, 219
 - Of Middle Period, 129
- Inscriptions continuous on Altars H' and I', 189
 - On architectural features, 220
 - On stelæ concluded on their associated altars, 182
- Interlacing glyph bands, 195
- Introducing glyph not at beginning, 356
 - In second position, 190, 191
- Introducing glyphs without Initial Series, use confined to Copan, 347
- Inverted L-shaped glyph panels, 151
- Irregularity of glyph outline, best criterion of archaism, 77
- Isagoge histórico, cited, 605, 607, 608
- Isla de Mugerres, 520
- Itza, 445
 - Migrate south to Peten, 487, 614
 - Retained Old Empire time-count, 523
- Itza chronology, its persistence, 473
 - Count, different from Xiu, 512
 - Records preserved, 473
 - New Year, according to Goodman, 491, 498
- Itzamna, 558
 - On Codex Peresianus, 575
 - On Mayapan stela, 574
- Itsimte, 391, 433, 437, 441
 - Abandonment of, 456
 - Four monuments deciphered, two doubtfully, all are hotun-markers, 571
- Itsimte Monuments, Altar 1, 434, 571, 584
 - Altar 2, 434, 571, 584
 - Stela 1, 571, 584
 - Stela 2, 571, 584
- Ix, not found as day-sign at Copan, 589
- Ixkun, 391, 433, 438, 441

Ixkun Monuments:

- Only one stela deciphered, not a hotun-marker, 571
- Stela 1, 559, 571, 585
- Stela 2, 571, 585
- Stela 5, 571, 585
- Jade, mentioned by Galindo, 596
 - Objects of, below Stela 7, 105
- Jaguar, 5
- Jaguar-skin cloaks, at Palenque, on Chama vase, on Stela 20 at Yaxchilan, 5
- Jalisco, objects from, at Chichen Itza, 34
- Jaw, fleshless lower, sign for zero, 159
- Jobitsiná Cave, 600
- Jocotán, founded by people driven from Copan, 603
- Jocote, 3
- Joyce, quoted, 406, 443
 - Correlation of chronology, quoted, 531
 - Error in Chichen Itza date, 531
 - Error in Tuluum date, 531
 - Other errors, 532
- Juarros, History of Guatemala, 18
 - On distribution of Chortí, 607
- Julian and Maya periods, similarity of, 48
- Julian period, analogy with, 465
- Kan series of year-bearers in Codex Tro-Cortesianus and Books of Chilan Balam, 517, 518
 - Introduced after 1200 A. D., 520, 521
 - Only series in use at time of Conquest, 518
- Katun, 566
- Katun anniversaries, 181, 336, 337
 - At Quirigua, 181
- Katun-circuit, 483
- Katun dates, correlation, 495
- Katun-ending, earliest certain, 398
- Katun-ending records, 184
- Katun-endings only, found after 9.19.10.0.0., 580
- Katun, lahuntun, and hotun endings, importance of, 65
- Katun, lahuntun, and hotun monuments, review, 578
- Katun-sign, 83, 201
- Katun-stones, erection noted by Landa and Cogulludo, 577
- Katun-wheel in Cogolludo, 472
 - Its explanation, 483
 - Lists in Mani, Kaua, and Tizimin manuscripts, 482
 - Seen by Stephens in 1841, 472
- Katun 11, commemorated by stelæ at six different Copan groups, 423
- Katun 13 Ahau 8 Kankin, 510, 518
- Katun 13 Ahau 8 Xul, 510
- Katuns and towns associated, 484
- Kaua manuscript, 482
- Kin-coefficient, unusual, 178
- Kin-sign variant, 168
- Kukulcan, in Codex Peresianus, 575
- Labna, Palace, 358
- Lacandon, a dialect of Choltí in Early Period, 611
- Lacandon territory, 542
- La Florida, 422
- Laguna de Términos, 609
- La Honradez monuments, 391, 433, 438
 - Stela 1, 585
 - Stela 2, 434
 - Stela 3, 434
 - Stela 4, 571, 585
 - Stela 5, 571, 585
 - Stela 6, 434, 571, 584
 - Stela 7, 59, 559, 571, 585
 - Stela 8, 434
 - Stela 9, 434

- Lahuntun, or 3,600 day period, 566
 Glyph for, 61, 88, 116, 183, 201
 Lahuntun ceremoni. s, 576
 Lahuntun-ending, earliest, 398
 Lahuntun glyphs at Copan, list of, 354
 At different sites, 566
 First identified by Goodman, 566
 Possible explanation of form, 567
 La Mar, 433, 438, 441
 Stela 1, 572, 585
 Stela 2, 572, 586
 Lamat, normal form, 64
 Unusual form of, 150
 Lamat, with Venus-sign on Altar K, 186
 Lamat and Venus-sign, 203, 237, 243, 244, 265
 Possible connections, 150
 Lamat and Venus year, 182
 Lambert, E., drawings, 22
 Lances of chay, obsidian, 545
 Landa, Diego de, History of Yucatan, 29, 42, 44, 222, 304, 322, 576, 577
 Date of death, 491
 Hieroglyphic manuscripts and objects burned by, 44, 468
 Trial, 29
 Landa "alphabet," 29
 Landry, M. D., finds Stela S at Quirigua, 571
 Landslide at Hieroglyphic Stairway, 239
 Latest dates at Copan, 430
 Latest Initial Series known, 411
 Latest monument of Middle Period, 427
 La Tibulca, Cave of, 548
 Lehmann, Walter, correlation of chronology, 528, 529
 Quoted, 45
 León Pinelo, Relación on Lacandon territory, 608
 Letras heridas, use of in different Mayance languages, 612
 Leyden plate, 84, 391, 393, 403, 411, 420, 516, 528, 567
 Description, 411
 Provenance of, 422
 Linguistic separation, probable course, 615
 Lintels, inscribed, 220
 Lizana, 42
 On settlement of Yucatan, 459
 Llano Grande, 14
 Local traditions, none at Copan, 542
 Lotun, Cave at, 438, 573, 580 (see also Mercer)
 Hunacab mouth, 572
 Long Count, defined, 64
 Correlation with Christian chronology, 499
 López, Gonzalo, 545
 Lords of the Night, 559
 Bowditch on, 559
 Los Higos, 6, 381, 391, 431, 433, 438, 441, 567
 Discussion, 384
 Stela 1, 333, 435, 572, 585
 Loss of 205 day positions in Yucatan year, 523
 Possible reason therefor, 522
 Probably occurs in Xiu manuscript only, reason, 522
 Lothrop, S. K., 27
 Find of archaic figure, 422
 Lunar period in Supplementary Series, 401
 Mac, forms for, 135
 Unusual form for (?), 154
 Magaña, Lucás, 544
 Maize, 3
 Maize god, 558
 Malaria, influence on development of civilization, 446
 Endemic in region, 446
 Maler, photographs of Chilán Balam manuscripts, 475
 Mani, Lord of, visits Montejo, 480
 Mani manuscript, 436, 457, 469, 482
 Mani and Tizimin passages, errors in, 506
 Difficulties, 533
 Manuscripts, hieroglyphic, burned by Landa, 468
 Marín Cristóbal, 545
 Martínez y Hernández, Juan, 468, 479
 Matting, 3
 Maudslay, Alfred P., 21, 23, 147, 187
 Error, noted, 324, 341, 349
 Nomenclature of monuments, 537
 Visits to and work at Copan, 21, 24, 537
 Maya and Julian periods, correspondence of, 48
 Maya Calendar, basic unit the day, 48
 Maya chronicles, editions, 32
 Maya chronology, starting point of, 34
 Maya civilization, a native American product, 28
 Hypotheses on origin of, 28, 402, et seq.
 Maya codices, contents of, 43
 Maya dates, equivalents in Christian chronology, 49
 Method of transcription, 47
 Maya inscriptions, history in, 44
 Maya, linguistic relation to Cholti, 611
 To Quiché-Pokom, 611
 Maya New Year, 516
 On July 16, o. s., 484
 Mayapan, Stela 9, 574
 Compared with page 11, Codex Peresianus, 575
 Stela at, mentioned by Landa, 577
 Mayance, linguistic stocks, 605
 Manuscripts, importance of, 613
 Tongues, consonant mutations among, 610
 Use of term, 605
 Means, Philip, studies on Peruvian chronology, 34
 Mecco, El, 520
 Meléndez, Luís, 545
 Membreño, Alberto, Chortí vocabulary, 607
 Menché Tinamit, 23
 Mendoza Codex, 36, 38, 41
 Mercer, excavation of caves of Yucatan, 438
 On occupation of Yucatan, 532
 Mérida, act of incorporation, 488
 Foundation, 488
 Mexican objects in other localities, 34
 Meze, visit to Copan, 21
 Mezquita, Martín de la, 544
 Migration of the Maya, eastern, via Bakhalal to Chichen Itza, 458
 Probable line of, 404
 Trend of early, 414
 Migration lines followed by Nahua, 444
 Moctezuma II, death of, 37
 Mohammedan lunar calendar, parallel with Maya Supplementary series, 554
 Molina Solís, J. F., 44, 491, 526
 Mongolian cultural connection unsupported, 224
 Monjarras, Fernando de, 548
 Monkey, 5
 Montejo and Lord of Mani, 480
 Montejo's entries into Yucatan, dates of, 488
 Month-coefficients, shift of, 512, 513, 515
 Cause, 521
 In Books of Chilán Balam, 513
 In Dresden, Peresianus, Tro-Cortesianus Codices, 513
 In New Empire, 513
 In Old Empire, 513
 Probable date, 514, 520
 Month-sign in terminal date replaced by unusual glyph, 138

- Month-sign indicator at Yaxchilan, Stela 1, Stela 11, Lintel 29, 138
- Month-signs at Copan, list of all, table, 589, et seq.
- Monuments, classification of, 50
- Majority of, belong to Great Period, 220
 - Method of designating, 50
 - Method of treatment, 46, 49
 - Periodicity of, 565
 - Quartz inclusions in stone of, 1, 2, 563, 564
 - Recent destruction of, 51
 - Sudden cessation of, at cultural zenith, 442
- Monumental types, chronological sequence of, 394, 395
- Moon-glyph, 152
- And God D, 153
 - In Dresden Codex, 554
 - In Supplementary Series, 554
- Mopanes, spoke Itza and not Choltí, 609
- Morán, Francisco, enters Lacandon and Chol territory, 608
- His manuscript, 608
 - Manuscript given by Mariano Gálvez to Amer. Philos. Soc. in Philadelphia, 609
- Morley, R. K., 551, 555
- Glyph C, 551, 561
 - Glyphs D and E, 562
 - On Supplementary Series, 563
- Morris, Earl, 27
- Motul Maya Dictionary, manuscript, 16
- Multiplication and addition, different positions of numeral modifier in, 312
- Municipality of Copan (organized 1893), 86
- Muñoz calls attention to Copan, 15
- Murga, Alonso de, 545
- Nachán, or Palenque, 615
- Nahua influence, 15, 16, 521
- Date of first, 502
 - Lines of migrations followed by, 15, 444
 - Period at Chichen Itza, 500
 - Year-bearers, 521
- Nahuan customs, effect on calendar, 480
- Nakuk Pech, see Pech, Nakuk
- Nakum, 433, 437, 441, 444, 458, 459
- Abandonment of, 457
 - Sculptured and unsculptured monuments, 439
- Nakum Monuments:
- Stela C, 333, 570, 586
 - Stela D, 451, 528, 570, 586
 - Stela U, 570, 585
- Nanché, 3
- Naranjo, 220, 391, 433, 441, 444, 459, 589
- Abandonment of, 457
 - Important date at, 579
 - Supplementary Series Glyph E at, 562
- Naranjo Monuments:
- Hieroglyphic Stairway, 281, 389, 554, 570, 583
 - Stela 6, 580
 - Stela 7, 333, 570, 586
 - Stela 8, 392, 559, 560, 570, 585
 - Stela 10, 333, 570, 586
 - Stela 12, 392, 566, 570, 585
 - Stela 13, 278, 559, 560, 566, 570, 585
 - Stela 14, 135, 570, 585
 - Stela 15, 278
 - Stela 18, 570, 584
 - Stela 19, 570, 585
 - Stela 21, 570, 584
 - Stela 22, 566, 584
 - Stela 23, 151, 584
 - Stela 24, 399, 400, 559, 560, 561, 566, 584
 - Stela 28, 392, 585
- Naranjo Monuments—*Continued.*
- Stela 29, 151, 559, 560, 561
 - Stela 31, 566, 584
 - Stela 32, 451, 570, 586
 - Structure 16, 220
 - Temple 17, 579
- Natural phenomena in Aztec Codices, 40
- Nephrite heads, found under Stela 3, 155
- New and Old Empire Periods, classification of, 505
- New Empire, Colonization period 458
- New Empire month coefficients, 513
- New Year ceremonies in Yucatan, 222
- New Year Days, 304, 306
- Less important than last day of year, 397
 - Perhaps referred to on Altar U, 304
- Nieto, Gonzalo, in Yucatan, 490
- Nomenclature of monuments, 537
- Non-Maya archaeological remains, complete absence of, in Old Empire region, 445
- Nonohual, 498, 501, 502
- Nueve Cerros, 609
- Numbers, and deities, relationships, 558
- Numeral ornaments, omission of, 64
- Modifiers, different positions for multiplication and addition, 312
- Numerals, composite, 136, 166
- Examples of, 166–169
 - Form for 17, 169
 - Ornamental fillers with, 59, 64
 - Lack of, a sign of archaism, 59
 - 13 to 19, characteristics of, 172
- Nusbaum, J. L., 27
- Obsidian lances, 545
- Occupation of Old Empire Cities, periods of, 433
- Length of, at Copan, 436
 - Longest at Uaxactun, 436
- Ocelot, 5
- Ocosingo, 391, 441, 459
- An Old Empire capital, 615
- Old and New Empire Periods, classification, 505
- Old Chichen Itza, description, 123
- Lintel discovered by Thompson at, 500
- Old Copan, 123
- Old Empire area, important sections yet to be explored, 439
- Cities, classification of, 440, et seq.
 - Cities, other than Copan, 433
 - Civilization, migration of, 578
 - Month coefficients, 513
 - Region reoccupied about 1447 A. D. after fall of New Empire, 461
- Old Maya Empire, divisions of, 46
- Fall of, 442
- Oldest monument in Maya area, 412
- Openings bored in Stela 3 in introducing glyph, 156
- Orantes tablet, 281
- Ordoñez y Aguiar, Canon, his work on Votanide traditions and early Empire, 613, 614
- Ordoñez de Villalquirán, Diego, 608, 609
- Orduña, Visitador, 17
- Origin of Maya civilization, 402
- Probably about 1000 B. C., 411
 - Probably between the Rio Pánuco and the Rio Grijalva, 407
- Osuna, Juan Vásquez de, 545
- Orzmal, place of Napot Xiu's death, 481
- Oxkintok, caves at, 438
- Oxkutzcab Chronicle, 470
- Page 66 probably copied from hieroglyphic codex, 472
 - Text, translation, and notes, 507, et seq. (also see Xiu)

- Owens, John G., death and burial, 25
 Work at Copan, 24
- Pabellón, El (see El Pabellón)
- Pacific Guatemalan slope, non-occupation of by early Maya, 615
- Padilla, Mariano, digested copy of Fuentes y Guzmán, photographed by Gates, 543
- Palacio, report on Copan, 541
 Editions, 15, 541
 On local dialects, 605
 Quoted, 15
- Palenque, 391, 433, 437, 441
 Abandonment of, 456
 Chronological and art criteria apparently contradictory at, 437
 Initial Series at, 100
 Katun-ending records at, 184
 Goodman on date of, 530
 Spinden on date of, 437
 Subject of figures at, 443
- Palenque Monuments:
 House C, 220, 389, 583
 House C, Stairway, 150
 Palace Group, 99, 515, 570
 Slab, 583
 Temple of the Cross, 150, 166, 167, 168, 386, 570, 579, 583
 Calculation, 98
 Error in month-sign on, 332
 Stela of, 583
 Temple of the Cross, Foliated Cross, and Sun, 282
 Temple of the Foliated Cross, 167, 570, 579, 583, 589
 Temple of Inscriptions, 237, 281, 346, 347, 358, 376, 566, 570, 579, 582, 583, 589
 Temple of the Sun, 153, 570, 583
- Palm, 3
- Palm nuts, 3
- Pan, Nahuatl suffix, 15
- Papaya, 3
- Paraíso, 6, 381, 431
- Pataxte, 3
- Paved plaza floors in vertical section of Acropolis, 211
- Payaqui, 605, 607
- Peabody Museum of American Archaeology, work of, 24
 Nomenclature of monuments, 537
 Photographs, 52
 Publications, 25
 Work at Copan, 537
- Peccary, 4
- Peccary skull, engraved, 379
 Now in Peabody Museum, 379
- Peccorini, Atilio, Chortí word-list from Copan, 607
- Pech, Ah Naum, chronicle found by Martínez Hernández, 468.
- Pech Nakuk, 578
 His chronicle, 468
 His position, 468
 Quoted, 475, 476, 498, 576
- Penck on climatic conditions, 450
- Peresianus Codex, 578
 Compared with Mayapan stela, 575
 Probably ceremonial rather than historical, 576
 Year-bearers on pages 19 and 20 of, 517
- Pérez, Juan Pío, on chronology, 525
 On katun dates, 495
- Period-ending date, at Loltun Cave, 573
 On Chichen Itza lintel, 500
- Period-ending dating, 466
 Superseded Initial Series, 392
- Period-endings, predominant in records, 191
- Stelæ to commemorate, first a Copan practice, 420
- Period-glyphs, specialization in, 83
- Period-markers, practice of erecting, when introduced, 396
 Stelæ used as, for 13 centuries, 391
- Period of greatest development, 396
- Periods, different, limits of, 53, 54
 Division in Early, Middle, and Great necessary according to Morley, 54
- Periods of Old and New Empire, classification, 505
- Periodicity of monuments, 565
 Bowditch on, 565
 Seler on, 565
- Periodicity of recorded dates in Early Period, 125
- Perry, E. W., concession at Copan, 24
- Peten region abandoned after close of Old Empire, 444
 Entirely deserted for over 800 years, 444
- Peten Itza, Itza migrate to, 487
- Petrographic description of Copan monuments, 463
- Phonology of different Mayance branches, 613
- Photographic record of Copan, 25
- Piedras Negras, 220, 391, 433, 471
 Abandonment of, 457
 Important dates at, 579
 Latest southwestern date found at, 438
 Subject of figures at, 444
 Supplementary Series at, 551
- Piedras Negras, Monuments:
 Altar 1', 150, 227, 228, 229, 584
 Altar 2', 282, 584
 Lintel 2, 45, 166, 444, 565, 583
 Stela 1, 156, 400, 401, 559, 560, 584, 586, 589
 Stela 2, 583
 Stela 3, 156, 228, 399, 400, 401, 559, 560, 584
 Stela 4, 227, 228, 566, 584
 Stela 5, 400, 584
 Stela 6, 565, 583
 Stela 7, 227, 228, 584
 Stela 8, 583
 Stela 9, 565, 584
 Stela 10, 152, 579, 584
 Stela 11, 228, 584
 Stela 12, 45, 392, 438, 444, 565, 569, 585
 Stela 13, 585
 Stela 14, 585
 Stela 16, 135, 565, 585
 Stela 22, 565, 584
 Stela 25, 111, 398, 399, 565, 567, 569, 583
 Stela 29, 436, 582
 Stela 31, 583
 Stela 35, 583
 Stela 36, 227, 565, 583
 Stela 37, 583
- Piedra Pintada, 13
- Pigeons, 5
- Pineapple, 3
- Pine-tree country, Sapper on early Maya habitat, 405
- Planetary motions, 35
- Playa Carmen, 520
- Polanco, Gaspar de, 544
- Ponce, quoted, 42
- "Pop counted in order," 519
- Popenoe, Useful Plants of Copan, cited, 4
- Popol Vuh, 461, 607, 614
- Porvenir, 458
- Pre-Maya sculptures under Altars X and Y, 208
- Probanza de Votan, 613
- Profile portrayal of principal figure, at Copan and elsewhere, 151
- "Prophetic" dates, 27, 197, 198, 333, 342
- Provenance of Copan monuments, table, 587, et seq.

- Puchutla, 608
 Pueblo Bonito, 34
 Putnam, Frederic W., work of, 24
 Putun, defined, 610
 Quarries, 6
 Quartz inclusions in monuments, 463
 Quiriguá, 6, 391, 433, 437, 441
 Abandonment of, 457
 Colonization of, 428
 Earliest date at, 272, 435
 Excavation, 27
 Hotun-markers of, 214
 Important dates at, 329, 344, 579
 Katun-ending records at, 184
 Probable foundation of, 272
 Subject of figures at, 443
 Supplementary Series at, 551
 Tonalamatl, 334
 Quiriguá, Monuments:
 Altar L, 334, 571
 Altar M, 571, 584
 Altar N, 571
 Altar Q, 334, 571
 Altar R, 334, 571
 Hieroglyphic cornice, 387
 Stela A, 571, 585
 Stela C, 150, 273, 282, 528, 565, 571, 585, 589
 Stela D, 156, 181, 231, 259, 320, 401, 565, 585
 Stela E, 156, 181, 227, 258, 273, 287, 301, 386, 397, 399,
 400, 401, 559, 579, 584, 585
 Stela F, 258, 273, 555, 559, 560, 561, 566, 579, 584
 Stela H, 194, 565, 584
 Stela I, 312, 554, 559, 560, 565, 585
 Stela J, 258, 273, 559, 560, 579, 584
 Stela K, 312, 554, 565, 586
 Stela S, 214, 571, 584
 Structure 1, 214, 220, 259, 276, 312, 389, 392, 554, 571,
 579, 586
 Zoömorph B, 214, 231, 386, 559, 560, 579, 585
 Zoömorph G, 214, 227, 228, 258, 273, 320, 565, 585, 586
 Zoömorph O, 214, 559, 585
 Zoömorph P, 214, 585
 Quebrada Seca, 13
 Quelen, defined, 610
 Quen Santo, stela, same date as Chichen Itza lintel, 459
 Stela 1, 580, 586
 Stela 2, 249, 527, 528, 572, 580, 586
 Quetzalcoatl, 502
 Quiahuitl, Ninth Lord of the Night, 559
 Quinteros, Miguel, 544, 545
 Rainfall, its effect on growth and decay of civilization, 448
 Rainfall figures, 2
 Rainy season, 2
 Ramonal, 458
 Range of inscriptions at Copan, 335 years, 391
 Recent destruction of monuments at Copan, 93
 Recovery of fragments, 164
 Red paint on monuments, 83, 96, 105, 132, 141, 346, 376
 Religious center of first settlement, 418
 Religious ceremonies during Great Period, probable effect
 of food crisis on, 456
 Removals of monuments from other localities, 194
 From Group 9 to Great Plaza, 419
 In early times, 211
 Representations, general character of not warlike, 443
 Reverse direction of reading glyphs, right to left, 312, 313,
 322
 Río Amarillo, 381, 431, 441
 Altars 1 and 2, discussion, 382
 Río Beque, 458
 Río Chixoy, 459
 Río Graciosa, referred to by Seler, 528
 Río Grande, 441
 Río Lacantun, 459
 Río Pasión, 438, 459
 Río Sesesmil, 123
 River course, 7
 River washing, 7
 Rocks, 1
 Rock material of Copan monuments described, 463
 Rope pattern, 57, 59
 Round altar, first found, 396
 Rosny, de, katun correlation, 526
 Ruano Suárez, Chortí vocabulary, 607
 Rubber, 4
 Rulers of Copan, their character, 423
 Sabaka, caves at, 438
 Sacchaná, stelæ, 459
 Sacred fire, renewal of, in Aztec Codices, 41
 Salto de Agua Chol word-list, 610
 San Diego Museum, 52
 San José de Motul, 441
 San Juan Ermita, founded by refugees from Copan, 603
 Santa Cruz Quiché, archaic sculpture at, 209
 Santa Rita, 6, 13
 Santiago, José de, 548
 Saville, Marshall H., work at Copan, 24
 Sapper, on correlation of chronology, 526
 On early habitat of Maya, 405, 406
 Scherzer, Carl, 21
 Scope of present investigation, 33
 Sculptured monuments not always a criterion of length of
 occupation, 439
 Secondary Series, contemporary date on later monuments,
 399
 Developed for brevity, 392
 Numbers counted backward, 162
 Order of, 264
 Term defined, 46
 Secondary usage of monuments, 55, 82, 92, 96, 122, 123,
 124, 125, 341
 Examples of, 82
 Of Early Period monuments, list of instances, 418
 Possible reason therefor, 82
 Seibal, 220, 433, 438, 441, 444, 458, 459
 Abandonment of, 457
 Seibal Monuments:
 Hieroglyphic step, 389, 571, 584
 Stela 1, 458, 528, 571, 586
 Stela 5, 220
 Stela 6, 220, 571, 585
 Stela 7, 220, 566, 571, 585
 Stela 8, 528, 571, 586
 Stela 9, 528, 571, 586
 Stela 10, 528, 571, 586
 Stela 11, 228, 528, 571, 586
 Stela 12, 571, 585
 Stelæ 2, 3, 4, 5, not deciphered, 571
 Seler, Eduard, on correlation of chronology, 528
 Periodicity of monuments, 565
 Quoted, 114, 116, 285, 408
 Strong Mexican bias in his Maya studies, 528
 Studies on inscriptions, 31
 Works, 31
 Separation of monuments of the three periods, 54
 Sequence of archaic stelæ, 125
 Series of 18 Tuns, on Stela J at Copan, 201
 Serpent-head decoration on earliest five altars, 62

- Sesemil River, 14
 Settlement at Copan probably not long before 9.0.0.0., 416
 Site, history of, 14
 Of ruins not that of city conquered by Chaves, 18, 23
 Skeletal characteristics, 81
 Smith, Elliott, quoted, 224
 Sotuta, last Cocom capital, 487
 Southwestern Maya field, latest date in, 438
 Southwestern United States, Mexican objects in, 34
 Speech scroll, emblem of, royalty in Aztec codices, 38
 Sphere of Copan influence, 6, 381-386, 431
 Spinden, H. J., on correlation of chronology, 531, et seq.
 On date of Palenque, 437
 On extravagance in art and cultural decay, 447
 On Stela 15, 87
 On Stela 18, 97
 On Totonacan art, 409
 Provisional chronologies, 34
 Publications, 26
 Quoted, 45, 53, 130, 141, 208, 226, 229, 326, 358
 Reliability of his stylistic criteria, 358
 Work on Maya art, 26
 Squash, 3
 Squier, E. G., on distribution of Chortí language, 607
 Stairways, hieroglyphic, at different places, 389
 Stelæ, as time-markers, 51, 127
 Intervals of erection, 51
 Method of transport, 397
 Removal of during occupation, 115
 Sequence of archaic, 125
 So used for 13 centuries, 591
 36 now known at Copan, 111
 Steps, Hieroglyphic, at other localities, 220
 Stephens, John L., error in Chortí word list from Zacapa, 605, 606
 Mission to Central America, and works, 20
 On location of monuments, 539
 On quarries, 6
 Quoted, 224, 239, 473
 Stiles, Charles Wardell, on malaria, 446
 Stoll, Choltí and Chortí vocabularies, 610
 Ethnographie, cited, 608
 Prints Stephens's erroneous "Chortí" word-list, 607
 Stone of monuments, 1
 Character of, 6, 463
 Stone carving, development of, 393
 Style, archaic, similar to that of Tikal, 54
 Style interchange with northern sites (on Stela 23), 151
 Stylistic criteria, 26
 Stylistic sequence, 53
 Apparent conflict with chronological, 354, et seq.
 Stylistic similarity of the seven 9.11.0.0.0 stelæ, 160
 Supplementary Series, 46
 Always preceded by an Initial Series, 74, 401
 Analyzed, 401
 Bowditch on, 551
 Description, 551
 Detailed analysis of glyphs, 552
 Discussion, 551
 Eclipse phenomena, 401
 Goodman on, 551
 Glyph A, 554
 Lunar-month sign, 554
 Glyph C, description, 555
 Probable explanation, 561
 Glyph D, description, 561
 Relation to glyph E, 562
 R. K. Morley on, 562
 Supplementary Series—Continued.
 Glyph E, analysis, 562
 At Naranjo, 562
 At Yaxchilan, 562
 Glyph X, description and analysis, 562, 563
 Possibly refers to phases of moon, 563
 Similarity to God C, 563
 Summary of conclusions, 563
 Parallels with Mohammedan and Babylonian lunar calendars, 554
 Pairs, head elements in Glyph C, 559, 560
 Term defined, 46
 Swanton, 409
 Sweet potato, 3
 Symbolism of 20 figures, 335
 Symmetry considerations, 322
 Syntactic parallels between Chortí, Maya, and Quiché-Pokom, 612
 Tap'r, 4
 Tassel ornaments, 69, 70, 83
 Tayasal, visited by Fuensalida, 473
 Tecuantepec, conquest of, in Aztec codices, 38
 Telleriano-Remensis Codex, 38, 39, 41
 Tenochtitlan, fall of, 468, 534
 Tepechpán, Mapa de, 36, 41
 Tepeyollotli, Eighth Lord of the Night, 559
 Terminal date, month-sign suppression in, 157
 Ternaux-Compans, quoted, 519
 Testera, Padre, entry in Yucatan, 490
 Tezulutlán, seat of Old Empire, 614
 Tezulutleca, possible name for Old Empire language, 614, 615
 Thatch palm, 3
 Thomas, Cyrus, commentary on Goodman's work, 31
 Thomas and Swanton, error in, 608
 Thompson, E. H., 500
 Tibulca Cave, 548, 600
 Tibulón, Cocom driven to, 487
 Tikal, 220, 391, 433, 437, 441, 444, 458, 459
 Abandonment of, 457
 And Uaxactun, practically one locality, 414 (see also Uaxactun)
 Archaic style at, 54
 Archaisms at, 76
 New Year Day perhaps referred to on lintels, 304
 Similar archaisms on Leyden plate, 76
 Stone stelæ at, long before settlement of Copan, 417
 Subject of figures at, 443
 17 sculptured stelæ at, 413
 51 plain stelæ at, probably painted, hotun-markers, 568
 Tikal Monuments:
 Altar 5, 135
 Palace of five stories, 584
 Stela 1, 414
 Stela 2, 414
 Stela 3, 76, 77, 83, 358, 380, 411, 412, 413, 414, 420, 441
 Stela 4, 393, 414, 434
 Stela 5, 76
 Stela 6, 76
 Stela 7, 393, 414, 434
 Stela 8, 76, 392, 393, 396, 398, 414, 420, 421, 434, 567, 568, 582
 Stela 9, 392, 414, 420, 421, 434, 568, 582
 Stela 10, 34, 76, 190, 191, 249, 281, 282, 283, 288, 346, 347, 349, 351, 356, 376, 411, 420, 529
 Stela 11, 76, 392, 413, 458, 528, 568, 586
 Stela 13, 393, 414
 Stela 16, 76, 413, 568, 584

- Tikal Monuments—*Continued*.
 Stela 17, 156, 401, 411, 412, 413, 420
 Structure 10, 566
 Temple I, 566, 584
 Temple III, 566, 584
 51 plain stelæ at, 568
 Tikoch, new Chel capital, 487
 Time concept of Maya, 282
 Time-count, Maya method, 48
 Accuracy of, 34
 Predominance of in inscriptions, 33
 Time counts, conflict of, 522
 Time element in adjoining cultures, 34
 Time periods, higher than cycle, 281
 Tixhualatun, place of archives, 577
 Tizimin manuscript, 436, 457, 470, 519
 Tlahtouani, 37
 Toad, Shrine of, 378
 Tqbacco, 3
 Tonalamatl, 222
 Important instance, 334
 Occurrence in inscriptions, 182
 On Stela 3, 158
 Prominence of on stelæ (C, F, H, 4), 351, 364
 Tool-work on Stela 3, delicacy of, 159
 Tools: metal, basalt, diorite, flint, 5
 Toral, Bishop, arrival of, 29, 489
 Torches, 4
 Totonaca, possible Maya affinities of, 403, et seq.
 Totonacan art, showing strong strain of Maya feeling, 409
 Towns and katuns, association of, 484
 Tozzer, A. M., 25
 Work at Harvard, 33
 Traditions at Copan, 542
 Tretheway, A. J., drawings, 32
 Trees, clearance of, 2
 Tro-Cortesianus Codex, deer-hunts in, 4
 Only Calendar-Round date in, 519
 Probably from Tuluum region, 520
 Similarity to figures at Tuluum, 519
 Year-bearers, 517, 518
 Tropical vegetation alone responsible for general destruction of monuments, 520
 Truncated-cone altar, 377
 Tulapán, 498, 501
 Tul-há, or Ocosingo, 615
 Tuluum, 391, 567
 Figures at, similar to those in Tro-Cortesianus, 519
 Stela 1, 393, 512, 531, 572, 573, 580, 582, 586
 Style of architecture, 519
 Wall paintings at, copied by Gann, 519
 Tun-sign, 83
 Synonymity with Winged Cauac, 153, 380, 573
 Unusual form, 153
 Used as zero coefficient, 99, 101
 Tun coefficient, unusual, 165
 Tun 13, importance of, 358
 Tuns, series of 18 on Stela J, 201
 Tutul Xiu (see Xiu)
 Tuxtla Statuette, 77, 209, 391, 393, 412, 416, 420, 500, 501, 515, 567
 Archaisms on, 76
 Provenance and description, 403
 Twenty figures, possible symbolism of, 335
 Tzalac, San Lucas, del Chol, 608, 609
 Thrice established, 609
 Tzec, forms for, 75
 Tzendales, 433, 437, 441, 459
 Temple of the tablet, 572, 583
 Tzentel-Tzotzil family, Choltri a branch of, 611
 Tzuc, defined, 477
 Uaxactun, 391, 433, 441, 444, 458, 459
 Abandonment of, 457
 And Leyden Plate show same archaisms, 76
 And Tikal, practically one locality, 414
 Early monuments at, 412
 Occupied for 541 years, 436
 Oldest city known, 436
 Reason for name, 412
 Stone stelæ at, long before settlement of Copan, 417
 Supplementary Series at, 551
 Uaxactun Monuments:
 Stela 1, 571, 574
 Stela 2, 571, 584
 Stela 3, 76, 358, 411, 412, 420, 571
 Stela 4, 571
 Stela 5, 76, 412, 413, 414, 420, 567, 571
 Stela 6, 312, 412, 571
 Stela 7, 571, 586
 Stela 8, 412, 571
 Stela 9, 76, 77, 393, 411, 412, 416, 420, 441, 500, 501, 568, 571
 Stela 10, 571
 Stela 11, 571
 Uayeb-sign not found at Copan, only three times elsewhere, 589
 Landa on Uayeb days, 590
 Uayeb and God N, 558
 Ucanal, 433, 438, 441, 444, 458
 Abandonment of, 457
 Stela 3, 435, 528, 572, 586
 Uinal forms, 232
 Uinal-sign, 83
 U kahlay katunob, or record of the katuns, 43, et seq.
 Contradictions in probable explanation of, 512
 Similarity to Aztec annals, 44
 Ulloa, Andres de, 544
 Underhill, G., 27
 Unexplored sections of Old Empire area, 439
 Uo, forms for, 66
 Relation to uinal, 232
 Uuo katun, or katun circuit, 483
 Uxmal, Ball Court ring, 511, 512
 Description, 515
 Monjas Quadrangle, 466, 511, 512, 514, 519, 522
 Uyajal, 542
 Valdivia, 476
 Valentini, on katuns, 526
 Closeness to Morley's results, 526
 Vandalism, 93, 292
 Vanilla, 3
 Vaticanus Codex, 37, 38, 39, 41
 Vegetation, 1
 Venus-sign, 150
 For Lamat, 203, 237, 243
 For Lamat, possible connections, 150, 265
 In introducing glyph, 185
 On Temple 21a, 319
 Venus years, 182
 And Lamat, 182
 Vera Paz, 542
 Vierra, Carlos, painting by, 52
 Villagutterre Sotomayor, Conquest of Itzas, 43, 472, 473, 492
 Volcanic activity, 1
 Eruptions shown in Aztec Codices, 39
 Rocks in earth below Stela 7, 105
 Votanide traditions, 613
 "Votanide" Empire, four divisions of, 615

- Warlike subjects, entirely absent on stelæ and altars at Copan, 219
 Rare occurrence of, elsewhere in Old Empire, 443, 445
 Weight of stelæ, 397
 Willoughby, C. C., 25
 Willson, R. W., 465, 551, 554, 558
 Winged-Cauac tun sign, 573 (see also Tun)
 Writing, decipherment of, 28
 Wright, Fred. E., on material of Copan monuments, 463
 Xcanchakan, Mayapan stela at, 574
 Xihuitlmolpia, or 52 year cycle among Aztec, 41.
 Xiu Chronicle (see Oxkutzcab.)
 Xiu count, different from Itza, 512
 Changed after fall of Mayapan, 523
 In western Yucatan lost Old Empire count under Nahuatl influence, 523
 Xiu genealogical tree in Oxkutzcab Chronicle, 485
 Genealogy, 22 generations from 1397 to 1914, A. D., 470
 Xiu, Juan, quoted, 471
 Errors by, 522
 Probable origin of, 522
 Xiu, Napot, Bowditch on, 529
 Classification of data on, 493, 494
 Death of, 478
 Résumé, 487
 Summary of evidence, 485
 Xiu, Tutul, 445
 At Uxmal, 487
 Xiutecutli, First Lord of the Night, 559
 Xiutzonli, turquoise-studded Aztec crown, 37
 Xupa, 441
 Yax, forms for, 66
 Yaxchilán, 23, 220, 433, 437, 447
 Abandonment of, 457
 Important date at, 579
 Subject of figures at, 443
 Supplementary Series at, 551
 Glyph E in, 562
 Yaxchilán Monuments:
 Altar (near Stela 1), 392, 399
 Altar 9, 565
 Altar (near Structure 39), 584
 Lintel in Berlin Museum, 168
 Lintel 3, 565, 570, 584
 Lintel 9, 100, 516
 Lintel 21, 168
 Lintel 29, 168
 Lintel 31, 570, 585
 Lintel 32, 151
 Lintel 33, 135
 Yaxchilán Monuments—*Continued.*
 Lintel 42, 151
 Lintel 43, 135
 Lintel 46, 151
 Stairway (on Structure 6), 389
 Stela 1, 559, 560, 561, 570, 585
 Stela 6, 166
 Stela 11, 151, 156, 242, 401, 559, 560, 580
 Stela 12, 203
 Stela 19, 151
 Stela 20, 5, 151
 Structure 5, 220
 Yaxhá, 391, 433, 437, 441
 Only one stela deciphered, 571
 Stela 6, 435, 571, 583
 Yaxkin, first day of, as New Year's Day, 101
 Year, beginning of, 134
 Year-bearers, 478, 515, et seq.
 In Codices Dresdensis and Peresianus, 516, 518
 In Codex Tro-Cortesianus, 517, 518
 In New Empire, 516
 In Old Empire, 516
 Nahuatl, 521
 Yucatan, colonization of, 459
 Consequences of civil war in, 445
 Discovery of, 457
 Early entries of fathers, 490
 East coast ruins, type of, 520
 Immigration from Tabasco in 10th century, according to Landa, 459
 Zac, forms for, 66
 Zapata, Muñoz, of Oxkutzcab, 488
 Zapote, 3
 Zaragoza, Springs of, 546
 Zero element, coefficient signs, 101
 Fleshless lower jaw, sign for, 159
 Month coefficient, an unusual form for, 99, 100
 Position in Maya months, 64
 Unusual form, 137
 Zilan, stelæ at, mentioned by Landa, 577
 Stelæ found by Morley, 577
 Zip, forms for, 66, 67
 Special form at Copan in decade following 9. 16. 10. 0. 0.
 67
 Unusual variant, 290
 Variant for, 280
 Ziyancaan, 457
 Location of, 458
 Zuiva, 501, 562



